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## Original Articles.

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### FATIGUE AS A CONTRIBUTORY CAUSE OF PNEUMONIA.

BY WILLIAM N. COWLES, M.D., BOSTON.

GROTON SCHOOL is a boys' boarding school, at Groton, Massachusetts. Plain living, strict discipline and great attention to athletic development and competition distinguish the school.

The school population, during the years 1906-12, consisted of 150 boys, about twenty masters and a large force of employees. The housing, heating, ventilating and sanitary arrangements are excellent. The boys eat in a common dining hall and sleep in dormitories, with open cubicles. The masters share the dining-room and some of them the dormitories with the boys. Masters and boys mingle in all the school activities, and come regularly in contact with many of the employees.

The health of the school population was good, with the single exception of an unusual number of cases of pneumonia among the boys, both before and during the earlier years of my connection with the school.

There were occasional epidemics of measles, mumps, whooping-cough, etc. Waves of "colds" or "grip," resembling influenza, attacked the community, and school population, with con-

siderable regularity, bringing boys to the infirmary with moderate fever, coryza, tracheal cough and an occasional otitis media.

The cases of pneumonia were mostly coincident with the occurrence of this milder respiratory infection.

In the school year 1906-7, there were seven cases of pneumonia; in 1907-8 and 1908-9 about the same number each year (twenty cases in three years). During this time, there was no pneumonia among the masters; only one case among the members of the masters' families, and that one followed etherization for a middle ear operation. There was none among the employees and no more than usual among the townspeople; none among the pupils of the Groton or Ayer high schools, each but two miles away.

Why should these boys, admitted to the school only in good health at an age (12 to 20 years) when serious sickness is rare, favored by excellent living conditions and regular athletic training in gymnasium work and outdoor sports, have pneumonia year after year, while the masters and their families, under no better conditions, and the employees, apparently less favored, were free from it; while the boys and girls of Groton and Ayer high schools, near by, of the same age, many of them from families of small means, comparatively poorly housed

and fed, with less regular habits and little athletic or physical training, did not have it; and the amount of pneumonia among the people roundabout was only trivial?

During these years, this question received much fruitless attention until the following occurrence suggested a solution: A boy who had been in the infirmary with fever, coryza and a cough, went out convalescent, took a long cross-country run, came in tired and quickly developed pneumonia. This suggested fatigue in this and other cases. It also suggests the possibility of inspiration of infectious material in addition to fatigue, as of course boys exercising violently and long, breathe violently and deeply.

It was afterwards noticed that boys discharged from the infirmary after respiratory infections, frequently returned with a recurrence, sometimes aggravated, after being tired by some athletic task or sport.

Examination of the infirmary records showed that in several instances boys had been discharged from the infirmary after respiratory infections and returned soon after with pneumonia. This happened among boys taught to disdain weakness and trivial ailments and to admire athletic excellence, suggesting that athletic zeal throughout the school by inducing excessive fatigue among boys when out of condition, had been the cause of pneumonia.

Beginning in 1909, boys were kept longer in the infirmary, severe exercise was forbidden while they were soft from even slight sickness, and athletic work was resumed gradually. In that year, there was one case of pneumonia; in 1910-11 and 1911-12 there was none.

Dr. Kilbourne, the school physician for the last six years, states that there has been only one case of pneumonia in the school in that time, and that case followed great fatigue from rowing and running.

In the 1906-7 year, when pneumonia was going in the school, there were 32 cases of measles among the boys. Those boys certainly carried other infections, as eight of them (twenty-five per cent.) had otitis media, requiring incision and drainage, and one had acute endocarditis, leaving a permanently damaged heart. They were kept quiet and out of school and sports until completely recovered. None of them had pneumonia.

The kind of fatigue observed as a cause of pneumonia at Groton, is an acute fatigue, due

to violent exercise like rowing or running in competitive sports and not mere weariness from everyday activities. The observed instances in which acute fatigue was followed by pneumonia were in boys already subject to, or convalescent from, mild respiratory infections and presumably easily tired.

That acute fatigue was a contributing cause of pneumonia at Groton, seems more than suggested. Pneumonia was confined to boys given to athletic tasks and sports. Between four and five per cent. of them had it each year for three years. It came to an end when boys ailing or convalescent were shielded from fatigue. The persons associated with the boys in the school and the high school pupils, near by, limiting themselves to everyday activities, did not have pneumonia.

Descriptions of pneumonia at army camps last winter suggest a strong resemblance between the conditions in them and at Groton School. Great numbers of young men were assembled and probably as well clothed, housed and fed in essentials as the boys at Groton. Epidemics of measles and a variety of more or less mild respiratory infections spread among them. Strenuous military training provided the conditions for inducing acute fatigue among those soft from mild ailments, convalescents from measles, etc. Many cases of pneumonia followed, but with a rate in proportion to the camp population no higher than at Groton School.

In the reports I have seen of pneumonia in the army camps, fatigue is occasionally mentioned as a possible contributing cause, but the opportunity to estimate its influence appears to have been lacking.

At Groton School, there was something like an experiment in the production of pneumonia by acute fatigue, with control groups, and time to work itself out.

If this experiment proves or suggests anything it suggests the operation of the same contributing cause of pneumonia in army camps and elsewhere, and that the disease may be lessened by similar measures against acute fatigue in persons out of condition.

#### TWO INFECTIONS CAUSED BY A SINGLE CARRIER.

BY D. M. LEWIS, M.D., NEW HAVEN, CONN.

In a recent article I showed that there was rarely to be found a carrier who, a straight

streptococcus carrier when found, later showed the diphtheria organism when the anterior nares was well cleared of the former organism or the reverse. In that during four and one half years of field work I have never previously been able to demonstrate that such a carrier actually gave rise to each infection in two different individuals, and that both such infections were single, the following carrier is worthy of report.

On August 2, 1918, I was asked to see a family resident of this city who feared from previous contact, infection with diphtheria. On entering the house of the family, I was followed by two children, the older of whom showed a right nares filled with a sero-purulent material. The history given by the mother was that for the previous six weeks the family of four children, with one of their cousins from New York city, had been at a neighboring shore resort. The cousin, E. B., female, age 8, had been sent to the Isolation Hospital on July 25 as a case of diphtheria, and within the immediately following few days the next to the oldest of the four children had been sent as a suspected case. Four cultures from the latter had been taken, all of which did not show that this girl of 16 had the disease. Fearful that the youngest member of the family, a boy, or the next older sister might take the disease, they asked an investigation. The older girl, and the boy mentioned, aged 6, showed nothing. The girl mentioned, S. W., aged 8, had had a cold for the previous three weeks, with occasional bleeding. Cultures from the right nares showed both K.-L. and the streptococcus. The mother was advised at the time that this individual was a carrier and to allow no further contact with the others of the family, although they had already been possibly exposed. On August 5, the older sister was discharged from the hospital and I took cultures from her throat. A similar gram-positive streptococcus to that of the carrier was demonstrable. The following day I was asked by this girl what I had found. Telling her that she would not understand the term but that it was not diphtheria, she stated that she had heard the attending physician frequently mention what kind of a sore throat she had and confirmed the word streptococcus as being the one used.

As the head cold of the carrier had antedated

the two cases by at least two weeks, the gender of the three individuals and their ages are of interest as being the usual sequence; the cousin, of a similar age and more susceptible to diphtheria than the older sisters and as the more intimate playmate, was a natural first case. The older sister as a more intimate contact than the younger brother and less susceptible to diphtheria was, in turn, exposed. Had the family been quarantined with the case at home, the younger brother would then have become a playmate and as a closer contact would have, if the general rule holds, become a secondary case of diphtheria.

The value of interpreting cultures in terms of all that they contain is shown in the instance given. In the only other instance which I have seen published there were apparently two different carriers for the two different infections, and the lack of diagnosis other than negative diphtheria is an excellent illustration of what may happen. In the *Journal A. M. A.* for July 7, 1917, under clinical notes, was given a case of wound diphtheria, complicated by rheumatic fever. Of three brothers, one age 8, had nasal excoriations and K.-L. on culture, the condition having been present for one month. A brother, age 5, had a wound area covered by a membrane which showed K.-L. Anitoxin was given to the latter boy with an immunizing dose to the former. A third brother, age 10, at the time, was found to have a temperature of 103.5, inflammation of the nose, many punctate spots on the tonsils and enlarged and painful glands in the neck. A culture from his throat proved negative. One week later the boy with the wound diphtheria who had recovered in two days, had a temperature of 103.6, pains in both knees and the right ankle and a red throat which on the following day showed tonsils covered with loose exudate. There would be but little question that the brother, age 8, was the diphtheria carrier, and that the brother, age 10, both from the clinical history and the negative culture, had a streptococcus nose with the sore throat, infecting later the boy, age 5, who then became a case of rheumatic fever.

My contention that when board of health standard method for the diagnosis of diphtheria in terms of negative or positive is replaced or reinforced by those who must use a Loeffler stain, with a Gram stain and the diagnosis of

positive for any and all apparent pathogenic organisms, clinicians will gain the true value of the laboratory aid and have obscure infections explained is again illustrated by these cases. To the epidemiologist as a health officer it is a prime essential.

### Selected Papers.

#### RADIUMTHERAPY IN HYPERTHYROIDISM WITH OBSERVATIONS ON THE ENDOCRINOUS SYSTEM.\*

BY WILLIAM HY. B. AIKINS, M.D., C.M., TORONTO.  
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##### PART I.

DURING recent years the increasing use of radiumtherapy in the treatment of pathological conditions of the thyroid gland has given the writer an opportunity to make certain interesting observations on the thyroid itself, and also on its relationship towards other members of the endocrinous system.

The use of radium has been directed more particularly towards pathological increases of function than towards simple enlargement of the gland. The extension of radiumtherapy into this field was first brought about by Dr. Robert Abbe, of New York, in 1905, who, by burying radium tubes in the gland itself, in a case of exophthalmic goitre, caused shrinking of the mass and cessation of the symptoms of thyroidism.

Tentatively the writer has treated one or two cases of hyperthyroidism some seven or eight years ago with clinical improvement. The permanence of the result obtained in these patients justified one in advocating radiumtherapy for such functional disturbances of the thyroid. In all, 45 cases have been under treatment, the majority during the past three years. Of these 23 have been clinically cured—that is, the tachycardia, tremor, and restlessness have disappeared, and symptoms of excessive thyroid secretion have abated. In 17 cases there has been an improvement, but not a complete cessation of symptoms. Four cases have passed observation. In only 19 patients did

the thyroid gland itself decrease in size, as evidenced by neck measurement, while in six there was no diminution in the size of the gland, although the nervous symptoms were completely relieved. In three cases thyroidectomy had been performed, but the nervous symptoms had not diminished. This was, however, effected by radiumtherapy.

In connection with the treatment of these cases, it must not be overlooked that general medical measures were carried out as well. In some cases complete bodily and mental rest, in others partial, was established. A low protein diet and one poor in extractives was devised, while the internal administration of quinine hydrobromate grs. 5 t.i.d., together with ergotin in gr. 1, t.i.d., was prescribed. In a large number of these cases all these usual medical measures had failed to relieve the symptoms, and it was only when radiumtherapy was added as a therapeutic measure that the hyperthyroidism was lessened.

It is to be noted also that it was only in a percentage of cases that there was decrease in the size of the gland. Surgical measures would be necessary in many to effect this, and yet the nervous condition was such that surgery was a very risky procedure. The relief of the nervous symptoms made it possible to undertake the surgical removal of the goitre for cosmetic reasons later on if the patient wished it.

The occurrence of exophthalmic goitre following the removal of the ovaries in two of three cases under observation interested the writer in the inter-relationship existing among the organs of internal secretion. These cases may be cited in detail.

*Illustrative Cases.*—Blair Bell reports two cases which are extremely interesting from the point of view of the subject we have under consideration. In one of them, a woman of 46, double oophorectomy was done for malignant disease. For the first two months after the operation the patient did well, but then the symptoms of exophthalmic goitre developed, and she died from it within a year of the operation. The second case was that of a woman of 25, who had been perfectly well until the birth of her first child, eleven months before she came under observation. Menstruation did not recur, and all the typical symptoms of exophthalmic goitre developed. In this case the uterus was found to be in a state of super-

\* Read at the meeting of the American Radium Society, Chicago, June 10, 1918, and reprinted from the *Medical Press*, Aug. 21, 1918.

involution, its length being less than two inches. The pathology of super-involution is still somewhat obscure. He thinks it probable that deficiency of ovarian secretion may play a part in some cases, but that at the same time secretory disturbances of the other ductless glands may lead to a similar condition. The following are details of two cases which have come under my observation:—

CASE 1.—Mrs. K., 35 years of age, who was referred to me in February, 1914, by Dr. Smith, of North Bay. In May, 1913, double oophorectomy was done for a chronic inflammatory condition. In the following November symptoms of hyperthyroidism appeared, gradually increasing in severity. She was treated by prolonged rest, the internal administration of quinine hydrobromate, and all the usual medical measures. When I first saw her in February, 1914, there was only slight enlargement of the thyroid, but the pulse rate was 140, and there was marked nervousness and tremor. The treatment was then supplemented by irradiation of the area of the thyroid gland by means of screened plaques of radium. Two weeks later the pulse rate had gone down to 75, nervousness and tremor were less marked, and she was resting well. Further radium treatment was given a month later. There was constant improvement in the symptoms, and she gradually became able to take more exercise and to do light work without distress. She has now resumed her normal life, and has been quite well ever since.

CASE 2.—Mrs. W. This lady had a hysterectomy performed in August, 1915, for carcinoma of the uterus. A year later she manifested symptoms of hyperthyroidism. She became very nervous and excitable, the thyroid increased in size, the eyes became prominent, and the patient was very much emaciated. The pulse was very erratic, going up to 140 on the slightest exertion. Rest, together with the administration of bromides, and quinine hydrobromate, the constant application of an ice bag over the heart, and the radiation of the thyroid gland at intervals, have resulted in most marked and gratifying improvement. The pulse has become steady and quiet, the nervousness, tremor, and exophthalmos almost completely disappeared, while she has gained in weight, and is now able to perform her ordinary duties.

In the Report of the Manchester and District Radium Institute Dr. Burrows reports seven cases of exophthalmic goitre, all of which are improved by radium. In a subsequent report, published in May, 1917, he says that of a total number of 40 cases 21 were considerably improved, but that in most of these cases sufficient time had not elapsed to estimate the permanent results.

Drs. Gaston Torrance, Gewin and Weed, of Birmingham, Alabama, report a case in which tachycardia rapidly subsided, the thyroid diminished in size, and nervousness disappeared. Dr. Lee, of Rochester, also reports a successful case, and says that, although exophthalmic goitre, with involvement of the thymus, does not respond to radium so well as to operation, radium brings about great improvement.

Dr. Dawson Turner reports the case of a woman at 69, who has suffered for two years from severe exophthalmic goitre with tachycardia up to and above 170. After other measures, including the X-rays, had been tried in vain, radium brought about rapid improvement, which was maintained.

The idea of a certain functional correlation and inter-relationship between different organs and different parts of the body is not by any means new, but within the last two or three decades this theory has undergone a considerable amount of development, more especially in regard to the relationship which exists between those organs which are known as the ductless glands or the organs of internal secretion. In spite of the fact that recent investigations, both experimental and clinical, particularly those of Biedl and Blair Bell, have added considerably to our knowledge in this respect, the exact character of this relationship still remains more or less obscure.

Internal secretions were first described by Brown-Séquard at a meeting of the Société de Biologie at Paris in 1889, who showed experimentally that, in addition to nervous inter-communication between the different organs of the body, a process of internal secretion, in the nature of a chemical interchange between certain organs, is constantly going on. This theory has since been elaborated by several writers, including Bayliss and Starling, Biedl, and Blair Bell.

To the ductless glands or organs of internal secretion, which are generally assumed to in-

clude the thyroid, thymus, pituitary gland or hypophysis cerebri, the suprarenals, the pineal gland and ovaries, Schafer has given the name of the endocrinous glandular system. He describes an endocrinous gland as one which is known to form within its cells some specific chemical substance which is passed directly or indirectly into the blood stream, thus forming the active material of its secretion, in the same way that ptyalin is the active agent of the salivary gland. The endocrinous glands differ from the salivary glands, however, in that their secretion remains within the body, circulating with the blood, whereas that of the salivary glands passes by way of a duct to the exterior of the body, and is excreted.

The results of the investigations of Biedl and Blair Bell indicate that the individual members of this glandular system are very intimately connected with one another, and that this relationship is dependent on a chemical interchange of their specific secretions, which is accomplished by the intermediation of the blood stream. They indicate further that this interdependence tends to keep the body as a whole in a condition of equilibrium. It is, therefore, reasonable to suppose that the removal of any one of these organs, or the cessation of its secretion, would be likely to have a more or less deleterious effect upon the others, and tend to upset the equilibrium of the body generally. Blair Bell's observations conclusively prove that this supposition is founded on fact.

**Hormones.**—Biedl assumes that the chemical correlation is brought about by means of the active principles of the secretions, which serve as intermediaries between the different organs. Sir Edwin Schafer states that the results of his research indicate that the action of the active principles of the internal secretions is not unlike that of the active principles of drugs, which also operate by direct action on the parts to which they are conveyed by the circulating blood.

The active principles of the endocrinous glands also resemble drugs, in that extracts of some of them tend to stimulate or excite the cellular functions, while others depress or inhibit them. An example of the latter effect is that of injection of extract of placenta, which tends to inhibit the secretion of milk.

The term *hormone*, which is derived from a Greek word meaning to excite or stimulate,

was originally applied by Bayliss and Starling to stimulating active principles, such as that contained in extract of duodenum after treatment by acid, and its significance has since been extended to include the active principles of all internal secretions. Biedl and Schafer point out, however, that there are two different groups of hormones. Biedl describes these two groups as assimilatory and disassimilatory, the first group conducing to the building up of living tissue, while the second favors its decomposition. Schafer describes them as stimulating principles and depressing or inhibiting principles, in that, while some of them stimulate function, others depress or inhibit it. Schafer emphasizes the advisability of discriminating between these two groups of active principles, and limiting the term *hormone* to those which have a stimulating action. For the depressing or inhibiting agents he suggests the use of the Greek word *chalone*, which is derived from a Greek word meaning to make slack. He defines a chalone as an endocrinous secretion, tending to inhibit or prevent activity of an organ or tissue, and a *hormone*, on the other hand, as a secretion which excites or stimulates an organ or tissue to increased activity. Biedl is of opinion that the increased functional activity of organs of internal secretion, which may follow the suppression of any one secretion, is to be regarded as a symptom of the disassimilation due to this suppression.

**Frequency of Goitre in Women.**—The much greater frequency of exophthalmic and other forms of goitre in women, as shown by a remarkable unanimity in the statistics to this effect, definitely indicates the close connection which exists between the thyroid and the genital organs, and the influence of ovarian secretion on the thyroid. This intimate relationship is also obvious from the fact that the manifestations of exophthalmic goitre frequently make their appearance or are aggravated at critical periods in development, such as puberty, during menstruation, and at and after the menopause.

As regards comparative frequency in the sexes, the returns of the Registrar-General show that during the four years (1911 to 1914) there were in England and Wales 1,613 deaths from exophthalmic goitre, 1,558 of them being women and 155 men, or a proportion of no less than ten to one. Hector Mackenzie has col-

lected 438 cases, 393 being women and 45 men, a proportion of nine to one. In six of his cases the condition followed a prolonged and difficult confinement. Dr. Helen Gurney has made an analysis of 93 cases of exophthalmic goitre, 92.5 per cent. of which were in women. Von Graefe states that his cases were six to one, Troussseau that his were fifty to eight, Henoch that his were twenty-three to four, and Praeile that his were twenty-one to one. Mr. James Berry, who has had considerable experience in the treatment of exophthalmic goitre, states that in his experience goitre was eight times as common in women as in men. Of 103 cases which he operated upon during 1913 eleven only were in men. In this connection Mr. Berry makes a rather interesting statement. He says that his patients with exophthalmic goitre are very seldom women who have married at an early age and had children. They are, as a rule, either unmarried women, widows, or women who are separated from their husbands, or women who are, in some way or other, not leading a normal sexual life.

*Influence of the Thyroid Gland on Menstruation and Puberty.*—The secretion of the thyroid may be either insufficient or excessive. If it is insufficient puberty may be delayed, or may be followed by secondary amenorrhea or scanty menstruation associated with dysmenorrhea. Blair Bell's researches indicate that if thyroid secretion is deficient menstruation is either scanty or absent altogether. The influence of thyroid insufficiency in this connection is shown by the fact that such cases are usually cured by the administration of thyroid extract. Many writers, including Biedl and Blair Bell, state that swelling of the thyroid is very common during the menstrual periods. Biedl is of opinion that, though it may be partly due to the general vascular changes which are associated with menstruation, there is no doubt whatever that a general biological relationship exists between the thyroid gland and the ovaries.

Blair Bell, on the other hand, points out that excessive thyroid secretion may act in one of two ways, namely: (1) It may stimulate the genital functions to excessive activity, or (2) it may upset general metabolism to such an extent as to cause them to cease altogether. He says that there is a form of hyperthyroidism which results in excessive menstruation, and

which is not associated with any of the ordinary symptoms of exophthalmic goitre. In his experience this excessive functional activity is not infrequently accompanied by menorrhagia. Blair Bell suggests the possibility that this excessive functional activity may possibly be due to incomplete development of the ovaries.

As regards the use of the term *hyperthyroidism* to describe Graves' disease, there seems to be some difference of opinion as to whether this is a very suitable description of it. Berry says that he does not go so far as to say that Graves' disease is due to thyroid insufficiency, but he considers that such a statement would be quite as accurate as to say that it is due solely to excess of thyroid secretion. In his opinion the idea that it is due to hyperthyroidism has arisen from the fact that the symptoms of excess are so very conspicuous that they completely overshadow the concomitant signs of thyroid insufficiency. Oswald also thinks that goitre, including Graves' disease, should not be regarded as a manifestation of increased thyroid activity, but rather as an indication that the secretion has lost its physiological value and become perverted.

Murray Leslie, in a series of cases, has observed the effects on menstruation of conditions of a certain degree of hypo- and hyperthyroidism, and concludes from clinical observation that the thyroid gland possesses two varieties of internal secretion, the one being of an excitatory character, and the other inhibitory. Some of his cases of hyperthyroidism were associated with profuse menorrhagia, others with partial amenorrhea. He is of opinion that in cases of obstinate amenorrhea the ovaries may very possibly be normal, and the thyroid or pituitary responsible for the symptoms. He emphasizes the desirability from this point of view, of using combined glandular extracts in the treatment of amenorrhea and other disorders of the genital functions.

*The Thyroid Gland and Pregnancy.*—Most of the writers on the subject seem to agree that it is quite a common thing for a woman who is suffering from goitre of any kind to say that it increases in size and causes more discomfort during pregnancy. Blair Bell thinks that this increase of thyroid activity, which in his opinion is most marked in the early stages of pregnancy, takes the form of a storage of colloid material in the vesicles of the gland, and that

this storage of colloid is probably necessary, owing to the changes in metabolism associated with pregnancy. He thinks that while thyroid activity is most marked during the early stages, that of the pituitary gland and suprarenals is most marked during the latter stages of pregnancy. Mr. James Berry does not agree that enlargement of the thyroid is most marked in the early stages of pregnancy as in his experience enlargement of the gland and dyspnoea usually occurred in the latter months.

As regards excessive thyroid secretion, Blair Bell is of opinion that it does not affect fertility unless the patient is in an advanced stage of Graves' disease. If pregnancy, which it rarely does, occurs in a case of marked exophthalmic goitre, he recommends the administration of large doses of calcium salts, owing to the tendency to post-partum and ante-partum haemorrhage. While he is unable to say positively whether or no pregnancy is capable of causing exophthalmic goitre, he has certainly met with several cases in which its onset occurred during pregnancy, and has found pituitary extract very useful in such cases.

Louise McIlroy has seen a previously cured goitre recur on the onset of pregnancy. She concludes that the enlargement of the thyroid during menstruation and pregnancy is probably due to the added strain which pregnancy throws on the organism, and the toxins developed by the ovary or the embedding-ovum. The thyroid, in an attempt to counteract this state of things, takes on added toxins.

Blair Bell points out that it has sometimes been said that ovulation ceases during pregnancy. If this is so, it may indicate that the insufficiency of ovarian secretion throws a considerable strain on the other organs of internal secretion, such as the thyroid and pituitary glands, and may, therefore, result in hyperplasia of these organs.

#### PART II.

*The Thyroid and the Menopause.*—Blair Bell is of opinion that deficiency of ovarian secretion, except when due to the natural or artificial menopause, may most often be traced to abnormalities in the more distant endocrinous glands. It is easy to understand that the psychic and nervous symptoms, which are usually associated with the natural menopause, are due to the loss of the ovarian secretion, which up-

sets the balance of correlation between the glands of internal secretion, and also to the changes in these glands which occur at this period, notably the thyroid and pituitary. It is a well known fact that intravenous injection of thyroid extract tends to lower blood pressure at the menopause.

In this connection Murray Leslie refers to the hypothesis advanced by Grünbaum and Ehrlich of the possibility of there being some connection between the growth of cancer in women and defective correlation of the internal secretions. Ehrlich assumes that normally certain substances are present in the circulation, derived from the internal secretions, and that these substances may possibly possess the property of stimulating the body cells to resist the cancer cells. If this is so, one would naturally expect the common incidence of cancer in women after the menopause, and its occurrence in earlier adult life might possibly be due to defective correlation of the endocrinous glands. In support of this hypothesis Murray Leslie reports a case of inoperable cancer in a woman of 28, who six months previous had developed amenorrhea, with the appearance of hair on the face and body.

*Effect on the Genital System of Removal of Thyroid.*—If the endocrinous glandular system is in such intimate relationship as would appear from what has been said, we should naturally expect that on the one hand complete removal of the thyroid would have an influence on the genital system, and that on the other hand that removal of the ovaries would have a corresponding effect upon the thyroid. The results of investigation show that this is the case.

According to Leonard Williams, the thyroid performs the following functions:—It presides over the nutrition of the skin and its appendages, and has a powerful influence on general metabolism, especially calcium metabolism. It is concerned in the development and building up of the body, the development and maintenance of the sexual functions, and with the maintenance of the body temperature. It is one of our chief defences against toxic invasion, is essential to the proper working of the nervous system, especially the higher functions of the brain, and reinforces or antagonises the action of the other ductless glands, especially the genital glands.

It is, therefore, not to be wondered at that

removal or atrophy of an organ of such universal importance should have a profound effect upon the harmonious correlation of the internal secretions. Blair Bell's experiments showed that after complete removal of the thyroid there is as much muscular atrophy of the uterus as is seen after oophorectomy, both in pregnant and non-pregnant animals. Changes also occur in the suprarenals, and there is increase in secretory activity of the pituitary body.

In women thyroid insufficiency affects the genital functions in proportion to the degree of insufficiency. Marked insufficiency, such as is seen in myxoedema, almost invariably leads to sterility. Excessive thyroid secretion is not infrequently associated with pathological conditions in the pelvis, but in such cases Blair Bell emphasizes the importance of distinguishing between those resulting from genital affections and those which are the cause of genital affections.

*Effect of Oophorectomy of the Thyroid.*—We therefore see that important changes occur in the genital system as a result of complete removal of the thyroid, and the investigations, both experimental and clinical, of Blair Bell and others, show that double oophorectomy leads to profound alterations in the thyroid and other endocrinous glands, affording further proof of the close relationship which exists between them and the ovaries.

Blair Bell found that in the rabbit experimental removal of the ovaries resulted in greatly increased functional activity of the thyroid, as shown by the production of colloid material, with which the vesicles of the gland became greatly distended. This newly formed colloid material differs from normal colloid material in that it is basophile and stains blue with haematoxylin, whereas normal colloid is acidophile and stains pink with eosin. Blair Bell says that he cannot account for this particular alteration in reaction and staining, but he suggests the possibility that the colloid produced after oophorectomy may represent a storage secretion, formed to meet the alteration of metabolism. He is of opinion that the enlargement of the thyroid seen in pregnancy corresponds to a certain extent with that occurring after oophorectomy. He has known more than one case of exophthalmic goitre to commence during pregnancy, and in view of

the results of his investigations he thinks it is amply proved that insufficiency or absence of ovarian secretion leads to changes in the thyroid which may in comparatively rare cases result in exophthalmic goitre. Louise McIlroy also says that it is a well known fact that goitre sometimes follows oophorectomy.

In addition to producing changes in the thyroid, oophorectomy seems also to influence the other endocrinous glands. Blach and Hulles report atrophy of the pineal gland in the whole series of cases. In the suprarenals of rabbits and cats Blair Bell found a definite increase in the reticular portion of the cortex at the expense of the zona fasciculata, together with temporary increase in secretory activity of the anterior lobe of the pituitary gland. His researches lead him to conclude that the changes in the other ductless glands after removal of their number are sometimes compensatory, and represent an attempt to correct the disturbances of general metabolism.

*The Importance of Calcium Metabolism in this Connection.*—Calcium salts are of great importance in human economy. In early life they are chiefly used for building up the bony skeleton, after puberty they participate to an important extent in the processes of reproduction, and in late adult life they are largely concerned in bringing about the pathological changes associated with senility, due to the retention of calcium salts in the tissues, especially the arteries. The various internal secretions directly influence calcium metabolism in one way or another, some of them, such as those of the suprarenals and the pituitary gland, tending to produce retention of calcium salts in the blood and tissues, and others, such as those of the thyroid and ovary, tending to induce excretion of these salts. This fact is the basis of the treatment of hyperthyroidism by pituitary extract, which has been recommended by Blair Bell. This treatment is on the principle that it is a normal function of the suprarenals and pituitary gland to antagonise the action of the ovaries and thyroid, and thus maintain equilibrium in calcium metabolism. Blair Bell has come to the conclusion that the effects on the thyroid and other endocrinous glands after removal of the ovaries are due to the upsetting of the balance of calcium metabolism by the absence of the ovarian secretion. In animals there is marked retention of

calcium after oophorectomy, with increased excretion of the phosphorus and nitrogen.

*Influence of "Femininity" on the Severity of the Symptoms after Oophorectomy.*—In discussing the question of the advisability or otherwise of indiscriminate oophorectomy, Blair Bell explains the great variations in the severity of the reaction of it, and also to the natural menopause, by the degree, in individual cases, of what he describes as "femininity," which he says normally varies within wide limits. In other words, femininity indicates the previous functional activity of the genital system, especially of ovarian secretory activity. He is of opinion that the severity of the symptoms following oophorectomy and the natural menopause is directly proportionate to that degree of femininity, and thinks that the ignoring of these individual variations accounts for the conflicting opinions expressed by surgeons, some of whom state that it produces little or no disturbance, while others describe severe reactions and distressing nervous and psychic symptoms. He suggests the possibility of estimating the degree of femininity before operation, and thinks that in many cases it would not be difficult to do so. If femininity and ovarian activity were found to be decidedly below the average, it might be possible to assert that little disturbance was likely to result from the operation, but unless this distinction can be made he does not think it right to perform oophorectomy indiscriminately. In the discussion which followed the reading of Blair Bell's paper Dr. Murray Leslie said that he strongly supported the view of the relationship between femininity and the secretory activity of all endocrinous glands.

*Importance of all Internal Secretions as a Whole.*—Enough has been said to indicate most unmistakably that there is an intimate and most remarkable relationship between all the organs of internal secretion, and that they one and all play an important and essential part in the process of development and reproduction. This is shown above all by the alterations in the thyroid and other ductless glands which follow oophorectomy, and on the other hand by those in the genital organs, especially the atrophy of the uterus, which result from complete removal of the thyroid. Total ablation of either the ovaries or the thyroid results in profound changes in general metabolism.

Biedl points out that on the one hand hyperthyroidism leads, as in Graves' disease, to functional changes in the ovaries, and that, on the other hand, primary changes in ovarian activity may secondarily affect the thyroid, and thus influence the development of the symptoms of Graves' disease.

Blair Bell emphasizes the importance of all the endocrinous glands in the development of the genital functions, and points out that, although the genital organs may be perfectly normal morphologically, they fail to become functionally active at puberty unless the whole of the endocrinous system is in perfect correlation and functioning harmoniously as a whole. Development of the genital organs appears to be dependent upon general metabolic condition regulated by the influence of all the endocrinous glands. Blair Bell also points out that what he describes as "femininity" is itself dependent upon the correlation of all the endocrinous organs, and not upon ovarian secretion only. He regards the ovaries as part of a system, "to which most, if not all, the other endocrinous glands belong," and that these latter organs are of great significance in relation to the reproductive functions as the ovaries themselves. The exact rôle played by the individual members of this system still remains more or less obscure, and we do not yet know to what extent excessive calcium retention, due to ovarian insufficiency, may be compensated for by thyroid secretion. On removal of the ovaries or their atrophy at the menopause the reproductive functions of the remainder of the endocrinous system cease, and the harmony of the system is naturally disturbed. In this event it is obvious that the individual must suffer if compensation or readjustment is not speedily and satisfactorily re-established.

If the connection between the ovaries and the other ductless glands is so intimate as is assumed by Blair Bell and others, it would indeed appear advisable to take this correlation into consideration before deciding to perform double oophorectomy, as we should have to consider the effect of the operation, not on the genital system alone, but also on the other ductless glands. Blair Bell says that in future "those who are interested in gynaecology may come to look upon the ductless glands, in that each one of them is absolutely indispensable to the harmony of the genital functions."

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## Society Report.

ABSTRACT OF THE PROCEEDINGS OF  
 THE FORTIETH ANNUAL CONGRESS  
 OF THE AMERICAN LARYNGOLOGI-  
 CAL ASSOCIATION, HELD AT AT-  
 LANTIC CITY, NEW JERSEY, MAY 27-  
 29, 1918.

(Continued from page 556.)

CONCERNING ATROPHIC RHINITIS AND OZENAS  
 WITH REPORT OF CASE REFERRED TO LAST YEAR.

LEWIS R. COFFIN, M.D., NEW YORK CITY.

The speaker believes he was the first to suggest that the foul odor which so frequently accompanies atrophic rhinitis and constitutes the disease known as ozena has its origin and is caused by a chronically diseased and poorly drained antrum. Since making this statement others have reported to him that they had treated several cases in this manner with the same excellent results.

In one of his cases there was no improvement whatever, although operations had been performed on both antra.

He was unable to account for the failure in this instance.

## DISCUSSION.

DR. CORNELIUS G. COAKLEY: It seems to me that all the odor should not be attributed to disease of the maxillary sinus. If the patient had pansinuitis I do not see why it should be cured by washing out the maxillary and leaving the same pathologic process in the ethmoid and frontal. Of course you do not get so much odor from them, but I should think you should clear them up as well as the maxillary, and I suggest that as the cause of the continuation of the odor.

DR. GEORGE L. RICHARDS, Fall River: I have had good luck in using the chlorinated oil in the type of case that Dr. Coffin has been speaking of. It is purely empirical. I used it thinking that it would do some good to place it on the surface and hold it there. It was done with the swab or spray, and not after opening the antrum. I have not been converted to the belief that all or even the majority of cases of atrophic rhinitis are due to antrum disease.

DR. THOMAS H. HALSTED, Syracuse: After seeing Dr. Coffin's cases last year, I treated a case with the foulest odor I ever encountered. I did a double antrum (simple Mikulicz) operation on her. The odor was simply unbearable and unendurable. Nothing further was done. The saline douche that she was using was kept up. I did not see her, after she went home, for a year. Then the odor had entirely disappeared. There was no odor from the nose whatever, and no other treatment had been carried out during this time but the washing out. In three of five other cases there was absolutely complete cessation of all odor. It was one of the most satisfactory operations of any that I have done. Of three of my five cases, the odor of which was very bad, was entirely relieved by the antrum operation; in the other two it was greatly lessened. There was a marked diminution in the amount of crusting in the nose. The odor comes, I am satisfied, more from the gas from the antral secretion than from the nasal scabs, though doubtless some comes also from the other sinuses, the frontal, ethmoid and sphenoid, when they are involved, and their treatment, by ventilation through operation, will be required in such cases.

DR. HENRY L. SWAIN, New Haven: What did you find in the maxillary sinus?

DR. THOMAS H. HALSTED, Syracuse: Nothing much; the operation was done by simply opening through the nose. I was not able to see as you would with a Caldwell-Luc. I made a good big opening through the nose and got ventilation and prevented the retention of secretion and pus.

DR. SWAIN, New Haven: Did the x-ray show anything in the antrum before operating?

DR. HALSTED, Syracuse: There was no x-ray made.

DR. SWAIN, New Haven: Did the transilluminator?

DR. HALSTED, Syracuse: Yes, and I did one

of these operations recently in a nose where the transillumination was clear.

DR. SWAIN, New Haven: You operated in spite of that?

DR. HALSTED, Syracuse: Yes.

DR. GREENFIELD SLUDER, St. Louis: The point that I should like to make is that if Dr. Coffin has established the opening of the antrum for the cure of ozena and the stench of an atrophic rhinitis, it seems to me that it is one of the greatest advances presented to us for a long time. Last year I asked the question, which was not answered, "What happens in a case of atrophic rhinitis when the olfactory fissure is crusted all around?" There is an antrum open, but the atrophic process is as active and destructive there as elsewhere.

DR. HENRY L. SWAIN, New Haven. In speaking to Dr. Sluder's remarks, I was endeavoring to bring out the proposition that Dr. Coffin has brought before us, because he will be accused of saying that he cures atrophic rhinitis by opening the antrum. He does not cure the rhinitis, but does cure the odor, as Dr. Sluder says. As I said at the last meeting, it was a most radical remark on Dr. Coffin's part, and if it bore truth as promised it was really an epoch-making suggestion, and I rise to confirm Dr. Sluder.

DR. GREENFIELD SLUDER, St. Louis: I forgot to state that I am going to try it when I get home.

DR. HANAU W. LOEB, St. Louis: It is obvious that if there is any process of this nature in the antrum, by securing good drainage there will naturally be improvement in the odor, just as I have found that by clearing out the ethmoida a particular odor that may accompany the process will improve or disappear. I feel that Dr. Coffin's contribution in this respect constitutes simply calling attention to the fact that the antrum being the largest cavity connected with the nose and most intimately associated with its function, the greatest opportunity for the development of these crusts is offered by it whenever it is subjected to the action of the putrefactive bacteria. I do not see why it should be affected in all the cases, or even in more than a fair number of the cases, because, according to my information and observation, the antrum is not more often affected than other sinuses.

DR. HENRY L. SWAIN, New Haven: If the people will take enough pains to cleanse the nose properly most of them can remain inoffen-

sive to their immediate environment. That would not be the case if the odor depended entirely on the condition of the interior of the antrum. So, although I am particularly friendly to Dr. Coffin's suggestion, I am sure that we are not going to cure all cases by opening the antrum, because all cases are not due to that. We are not saying that he does not do it, but we hope to do equally good work. In an atrum where I could see in pretty well through a large natural opening between the antrum and the nose, where there was an atrophic process in the nose, we could see in the antrum that the mucous membrane lining the antrum had the same process going on in it as in the nose. That is, there were masses of atrophic material lining the entire cavity of the antrum. If that could exist once, it could many times, and that explains why in some of these cases in which, as Dr. Halsted discovered, where there is no darkness under transillumination, there will be going on the same process as in the nose, which can be relieved by opening the sinus, and only by doing so.

DR. T. HALSTED, Syracuse: In three of my cases the odor was extreme. In the other two, the odor is much relieved. It is simply remarkable what improvement has taken place. I can only say in a general way that there was a diminution in the amount of crusting. I do not believe that all the odor comes from the crusting. I believe that it will be proved that it is from the maxillary sinus as well as the ethmoid and frontal.

DR. GREENFIELD SLUDER, St. Louis: If the author can locate the antrum as the point from which the stench proceeds, that is the most valuable contribution that we have had for a long time.

DR. L. A. COFFIN, New York City, closing: Dr. Sluder has given a perfectly proper definition of ozena as "the odor accompanying atrophic rhinitis." Then he talks of seeing scabs about the olfactory fissure—but does not state that there is any odor or ozena from these particular scabs. We are not discussing scabs, but an odor known as ozena.

Dr. Coakley asks why the antrum rather than the other sinuses? The antrum is practically the only sinus I have ever opened from which was emitted a foul odor. This occurs frequently and is due to the anatomic structure of the antrum. Drainage is at the top, while in most other sinuses drainage is from the bottom.

The case of a young lady comes to mind. She

had extreme atrophy, no inferior or middle turbinates in sight, nose much bescabbed and, when she first came, emitting a foul and stinking odor. Her antra having been opened and cleansed, the odor (ozena) has entirely disappeared, while undoubted disease of many of the other sinuses persists, as does scabbing, although not to the same degree as before the treatment of the antra.

She was one of the cases seen by Dr. Halsted. Another was a young boy about twelve years of age. Apparently he had not only marked disease of the antrum of one side, but marked ethmoiditis as well—nose full of crusts and ozena. I opened and treated the antrum, purposely leaving the ethmoids untouched. The odor disappeared.

As to the value of the x-ray in diagnosis: It is a help, by no means infallible. Personally, I care little for another's reading of the negative. Now, these are the thoughts which I wish to impress and leave with you: First, that the odor of ozena comes frequently from disease of the antrum, and is relieved by the treatment of the antrum. Second, please remember that I have today reported a case not so relieved.

I trust that you will all try the treatment, as has Dr. Halsted, and that you will bear in mind that we do not expect 100% perfect results in 100% of the cases.

(To be continued.)

#### Book Reviews.

*Shall Disease Triumph in Our Army?* By MAJOR LOUIS LIVINGSTON SEAMAN, W.S.V.E. New York: American Defense Society. 1904.

This volume, published in 1904, is a plea for the reorganization of the Medical Department of the United States Army. The author describes Japan's conquest of preventable diseases, in the hope that the American army may be made as efficient as Japan's. Japan's preparatory work includes careful supervision of the slightest details. The medical officer is much more conspicuous than in our army; he is found at the front, in the rear, and in camps. The records of loss by diseases are much greater in the British and American armies than in the Japanese. Japan's aim has been to eliminate preventable diseases, and reserve her army for legitimate death on the field. In the Russo-Japanese War, instead of the usual average of four deaths by disease to one by bullets, the Japanese showed a record of four deaths from bullets to one by disease. The record shown by her naval hospitals is unparalleled. Her military hospitals are directed by trained, pains-

taking specialists who have the most advanced ideas in medicine and surgery, including scientific massage, surgical gymnastics, pharmacies, bacteriology and excellent sanitation.

The hospitals at Shibuya, Fouama, Hikawa, Hiroo and Senadagoya—their buildings, staff, nurses, equipment and diet—are described, and a contrast is made with our own unhappy army hospital and medical history. Military hospitals on the line of communication and reserve hospitals all show thorough preparedness, and the hospitals reveal a uniform condition of perfection in the theoretical and scientific arrangement of all the details.

One chapter of the book is devoted to figures and comparisons. The ratio in the Russo-Japanese war of those killed in action to those dying from disease is unprecedented: 8.83% died of wounds received in action; only 2% died of disease. Only 3.51% of the total sick in the Japanese army was due to infectious diseases.

The system of hygiene in the army is unusually effective because the Japanese recruit is taught to obey the surgeons, and medical officers' recommendations are rigidly enforced. The duties of the medical officer constitute the following three things: the selection of the recruit by physical examination, the preservation of his health after enlistment, and his care when he becomes sick or wounded. One of the chief methods by which success in prevention of disease has been achieved lies in the fact that systematic instruction is given in elementary hygiene and first aid, by the medical officer, to every soldier enrolled in the army. In addition, each soldier is given a handbook dealing with various diseases and injuries. The one hygienic rule that stands out most clearly is that the soldiers are never allowed to drink water unless it has been boiled. Water is tested all along the line of march, and placards are posted describing the uses to which the water may be put. Sanitary inspection is made of places to be occupied by troops; and canteens, well managed and wholesome, are supplied.

The author makes comparisons between our little wars in Cuba and Porto Rico and the well-conducted campaign of the Japanese in Manchuria. Incompetence—an insufficient transportation, food, shelter, medical supplies and medical attendance—characterized our army. The secret of the failure of the Medical Department in the United States lay in the fact that the medical officer can make recommendations but can never issue an order; he had no authority to carry out systematic sanitary work, whereby preventable diseases may be prevented.

Changes since this book was written have made our Army and Navy medical departments among the most efficient in the world. The contrast of their accomplishment in the present war, with that in the Spanish War, is evidence of the timeliness of the author's criticisms.

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### PUBLIC HEALTH ADMINISTRATION IN RUSSIA IN 1917.

THE United States Public Health Service has recently issued a statement concerning Public Health Administration in Russia for 1917. The most unique and significant contribution which Russia has made to the art of public health administration is the organization of a combined system of free medical care and health protection for her rural population through the medium of the zemstvos, or local representative assemblies. The problems of rural medicine and rural sanitation are everywhere most pressing and most difficult ones. In Russia, with 85 per cent. of her population of some 180,000,000 living in rural districts, there problems are even more urgent than they are elsewhere. A brief consideration of the way in which their solution has been attempted is fundamental to a conception of the general system of health organization of the new Republic.

The first hospitals were built in connection with churches and monasteries after Vladimir embraced Christianity in 988. Many monks and priests became famous as healers in the period from the eleventh to the fourteenth century and lay physicians gradually made their appearance. Ivan the Terrible brought English medical men over in the sixteenth century and Peter the Great introduced many foreign physicians and sent Russians to learn the art abroad. Under Catherine the Great the Medical Faculty of Moscow was organized and many hospitals were established. The Medical-Chirurgical Academy (now the Military Medical Academy) was founded at Petrograd in 1800.

In spite, however, of advances made in the great cities, the rural population of Russia lived and died practically without medical care. They were treated, if at all, by midwives and occasionally by feldschers, the latter being medical assistants of a type peculiar to Russia, who have completed four years in the Gymnasium (about equivalent to our Grammar school graduation) and have then spent three or four years in special training, which includes elementary anatomy, physiology, with a little bacteriology, pathology, and the like. Fully trained physicians were known in the country only as Government officials who made their appearance on the occasion of an autopsy or of some official inquiry.

The zemstvos or rural constituent assemblies were created in 1864 by Alexander II. They are elective bodies which conduct the local government of Provinces and of the rural districts within the Provinces. At present they exist in between 35 and 40 of the 50 Provinces of European Russia. Members of the Zemstvos under the old regime were chosen by a special electorate, including owners of a specified amount of land or property, representatives of educational and benevolent institutions, and commercial companies. Under the Republic, the basis is of course universal suffrage, and far-reaching changes in personnel are likely to take place as a result. The assemblies of Provinces and districts meet annually to legislate and to elect the permanent zemstvo administrative organization. Zemstvo activities deal with problems of local taxation, road construction and maintenance, local postal service and the like, as well as with education and health pro-

tection. Under the Republic, the provincial zemstvos should exercise powers essentially similar to those of our State Legislatures, while the district zemstvos constitute units somewhat analogous to the county governments in certain of our Southern States.

When the zemstvo organization was created there were hospitals in the larger centers of population controlled by the provincial governors, and there were a few small hospitals, chiefly served by feldscherers, for the peasants of L'Etat and L'Apantage. The emancipated serfs were wholly unprovided for, as were the industrial workers, with the exception of the miners in the Province of Perm. Altogether there were turned over to the newly organized zemstvos, 32 provincial hospitals, with 6200 beds, and 303 district hospitals, with 5100 beds. These hospitals were for the most part in very bad repair, highly insanitary, and grossly mismanaged. There was rarely provision for adequate isolation of communicable diseases, and it is small wonder that "the necessity of entering a hospital was regarded as a chastisement from God."

The idea of furnishing real medical care, not only to the city dweller, but to the peasant in the remote rural district, seemed to many observers in 1864 too Utopian, even to be thought of. The difficulties were indeed great. In some regions, villages are a mile apart, with 50 inhabitants per square mile, while in other regions villages may be 5 to 15 miles apart, with 5 to 10 inhabitants per square mile. Yet it was to this Herculean task that the zemstvos promptly addressed themselves. At first they attempted to care for the rural sick by feldscherers, under the direction of an itinerant physician. This service proved inadequate, however, so a system of fixed medical districts, each provided with a small hospital and a qualified physician, was introduced.

So successful were the zemstvos in the expansion of this side of their work, that by 1890 instead of the 335 hospitals, with 11,309 beds originally turned over to them, there were 1,422 zemstvo medical districts, with 1,068 hospitals of 26,571 beds and 414 dispensaries. The number of medical practitioners also greatly increased. A large part of rural Russia is now divided into medical districts, each of which centers about a small hospital or dispensary. Medical care is always given without charge,

and there has been a steadily increasing tendency to make all dispensary and hospital treatment free as well. The care of the sick is recognized by the zemstvos as a natural duty of society rather than as an act of charity.

Aside from this purely medical work, which was their original function, the zemstvo physicians in most provinces have extended their activity along preventive lines. The relation between the prevention of disease and the free medical care of the poor is a very close one, and it is interesting to note that this has come about in Russia by the expansion of a state medical service along preventive lines, while with us the reverse process is taking place, health departments, originally organized for preventive work alone, developing as an offshoot provision for medical examination and clinical care of the individual.

Today the regular zemstvo physicians are expected to devote a certain proportion of their time to school inspection, control of epidemics, collection of vital statistics, and public-health education.

The zemstvo organizations have rendered great service along army medical and sanitary lines during the war. When the strain of war proved too heavy for other agencies, the union of zemstvos, the union of municipalities, and the Russian Red Cross stepped into the breach and assumed a large share, not only of the medical care, but of the clothing and provisioning of the army. The zemstvo and municipal unions now maintain 200,000 hospital beds in the rear for army use, as well as a large organization at the front, and they have an elaborate and well-organized machinery for purchasing or manufacturing and distributing medical and surgical supplies. A central committee, representing the unions of zemstvos and municipalities, the Russian Red Cross, and the sanitary department of the army, meets every night in Moscow to plan for the evacuation of sick and wounded soldiers, of whom 4,000,000 have been handled by this and other similar committees since the beginning of the war.

In Russia, as elsewhere, the most intensive development along public-health lines has taken place in the cities, and particularly in the two cities of Moscow and Petrograd, which are in the 2,000,000 population class.

Moscow leads in municipal health admini-

istration, and her system is a fair example of the methods prevailing in the large cities of Russia. The water supply of the city (averaging in 1915, 27,270,000 gallons per day) is derived chiefly from the Moscow River, and is purified by slow sand filtration, with chemical coagulation when necessary. About one-sixth of the total supply is, however, contributed by well waters from Mytiszezy. Bacteriological results on the treated water are good, and the comparatively low death rate of the city from typhoid is good evidence of the effectiveness of the process.

Moscow is one of the very few Russian cities which have installed comprehensive systems of sewerage and sewage disposal. Not over a dozen cities of Russia have sewerage systems which receive fecal wastes, and only four or five have any system of sewage treatment. Even in Moscow, only the central district of the city is at present connected with the sewers, and in 1915, 572,442 cartloads of night soil were removed from the outlying districts and dumped under highly offensive conditions in areas of low land. The sewage proper, which amounted in 1915 to 18,274,000 gallons per day, flows to two separate irrigation areas.

Aside from strictly sanitary engineering problems, the health administration of the city is directed, so far as its general policy and finances are concerned, by a board of health of 20 members. There is also an advisory medical board, representing the hospitals, district and school inspectorate, which passes on recommendations of bureau chiefs as to medical policies, and nominates candidates for medical posts; a sanitary advisory board which exercises similar functions in regard to problems of epidemiology and the like; and half a dozen smaller advisory boards, which consider special problems relating to ambulances, hospitals, obstetrics, psychiatry, school inspection, veterinary medicine, pharmacy, etc. This system of advisory boards through which the expert staffs express their views on the problems of policy which concern them is very characteristic of Russian health administration in all its phases.

Executive authority is divided between three bureau chiefs, who deal respectively with hospitals, sanitation, and sanitary statistics, all of them being physicians. This arrangement, with

its close correlation between hospitals and sanitation and the recognition of statistics as an independent branch of cognate importance, is also typical of general practice in Russia.

The statistical bureau of Moscow, under Dr. Mikhailovsky, is particularly well-organized, and has a library of 50,000 volumes.

The routine sanitary work of the city is conducted by 20 district medical inspectors, who are charged with general functions which belong to the divisions of communicable diseases and sanitation in an American city health department; that is, they visit cases of acute communicable disease, secure their isolation, study the epidemiological factors involved, and inspect factories, lodging houses and the like. The work of terminal disinfection, which still occupies a very prominent place in Russian sanitation (and with some propriety in view of the prevalence of insect-borne diseases), is cared for by a chief disinfecter, with some 25 assistants; and the city maintains an elaborate disinfecting station for clothing and bedding, with steam and hot water disinfection, and with a "Japanese chamber" for combined heat and formalin treatment. For food control, there is a separate force of 20 inspectors, and analytical work is carried out in a well equipped food and water laboratory. Diagnostic examinations are made at the university and the various hospitals. Finally, there is a third group of medical men for school inspection. Each of these physicians has about 20 schools and some 3000 children under his care. He inspects the school buildings, and at the beginning of the year makes out an individual health card for each child and keeps track of all who are in need of special attention. He attends to the isolation of school children and the disinfection of schoolrooms, instructs the teacher in the early signs of communicable disease, and sends children in need of treatment to the general hospitals or to the special school clinics maintained for the treatment of diseases of the eye, ear, nose, throat, and teeth. Vaccination is stimulated by sending medical students out to vaccinate, free of charge, in the poorer districts, but is not compulsory.

The city of Moscow maintained 24 public hospitals in 1915, with a total of 6992 beds, and the number of new patients entering during the year was 72,830; 1,264,676 persons made a total of 2,969,806 visits to the public dispen-

saries. There is one special hospital of over 400 beds, and one special clinic for venereal cases, while cases of this character, if not in an infective stage, may be received at any clinic. There are two sanatoria for tuberculosis, with a capacity of about 40 beds each, but tuberculosis cases are also admitted to most of the general hospitals.

The city also maintains admirable municipal lodging houses, with over 5000 sleeping places. For dealing with the important problem of infant mortality, the city maintains three infant-welfare stations, at which some 3000 infants are received during the year, and about 100,000 quarts of milk distributed. The principal station, in connection with the Morosov Hospital, has a perfectly equipped plant. The rooms are light, airy, and tiled, every possible equipment for the medical examination of the infants and for the preparation of milk is provided, and the waiting room is furnished with an admirable collection of models and pictures, illustrating good and bad methods of infant care, the models of dangerous foods, and the pictures of objectionable methods of clothing and the like, all being labeled in red, so that the most ignorant mother cannot fail to grasp their significance.

In regard to the various communicable diseases, measles, as is often the case with us, is the most serious of the acute contagia, while typhoid fever is fairly low, and diphtheria and scarlet fever very high. Typhus and relapsing fevers have been fairly well controlled in recent years, though the central location of Moscow and its heavy railroad traffic have in the past exposed the city to frequent infection with these diseases, which have often made their first local appearance in the lodging houses. Smallpox is still a serious factor in the death rate, and dysentery constitutes a grave problem. Pulmonary tuberculosis is fairly high and is probably much higher than is known. The rate for diarrhea and enteritis under two years is appalling.

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#### MEDICAL NOTES.

NOTES ON INFLUENZA EPIDEMIC.—New York's death list is increased according to Health Commissioner Copeland who announced that

2,073 cases of Spanish influenza had been reported on October 6th as against 2,067 cases on the previous day. There were 185 pneumonia cases and deaths from both diseases totalled 113 or 37 more than in the previous 24 hours. According to Dr. Copeland, the new cases are of a less severe nature than those reported at the first of the epidemic.

Brockton Board of Health announced that the death rate has increased in that district, and that there were 25 deaths in the 24 hour period, making a total of nine more than had occurred in any other 24 hours. Deaths in three weeks from the epidemic aggregate 220. Despite the increase in the number of deaths, the number of new cases reported has been considerably less in the past week. The new military tent hospital on land near the Brockton Hospital opened its doors to 35 patients, several of whom came from Whitman and other surrounding towns. The hospital has a capacity of 200 beds. It is in charge of Capt. Cushing of the state guard.

In Boston the epidemic is on the wane. Burial permits are decreasing from 170 daily to 150. The schools are now open. The retail stores are ordered to open at 10 and to close at 6.15 p.m. and business offices are requested to close at 4 p.m. Another appeal has been made by Mr. Endicott for nurses and nurses' aids. No deaths reported in the First Naval District or among army men under jurisdiction of the Northeastern Department. There are also fewer new hospital cases and ambulance calls.

Springfield's latest reports gave an increase in the number of deaths in the western part of the state. The official board of health reports 10 deaths, 370 new cases and a total of 1325 cases up to Oct. 7th. Springfield Hospital has been closed to all cases except influenza.

Pittsfield and Athol were most affected. Pittsfield has 200 new cases, and Athol reports one death, 100 new cases with a total of 850. The Woman's Club and Red Cross have opened kitchens to prepare food for entire families who are ill.

Holyoke reported six deaths and 73 new cases up to Oct. 7th, making a total of 640.

Turner's Falls had four deaths and Westfield had one death and 111 new cases. Orange reported five deaths; Greenfield had three deaths and 54 new cases; South Hadley had two

deaths, one a freshman at Mt. Holyoke College. There are 18 new cases here, making a total of 203. There was one death in Pittsfield, one in South Deerfield, five in Millers Falls and two in Shelburne Falls.

First anti-influenza serum inoculations were made on every officer and inmate of the Monson State Hospital, Pennsylvania, New York and Massachusetts doctors are on duty to watch developments at the institution.

In Lynn, 20 deaths due to influenza were reported, and the Mayor of Lynn has asked the city council to make a special appropriation to fight the epidemic. The schools are closed and will continue so for a fortnight or more. A large number of teachers are also ill. In the temporary home for children at 11 Olive St., there are now 40 beds. Another temporary hospital will be opened at Church St. for children whose parents are ill with influenza.

Pneumonia in Camp Devens continued to decrease, with 4532 new cases and 1388 deaths up to Oct. 7th. Influenza cases reported from all camps since the beginning now total 167,000: pneumonia cases, 17,102, and deaths, 4910. Camp Dodge, Iowa, reported the largest number of new cases during the week ending Oct. 7th, 3092 cases, and Camp Funston, Kan., the next largest, 2070 cases.

Camp Meade, Md., and Camp Lee, Va., show abatement in the progress of the epidemic; pneumonia cases at the former numbered 844, with 115 deaths, and at the latter 357, with 74 deaths. Camp Grant, Ill., and Camp Sherman, Ohio, reported an increase.

Six physicians in Boston have died from this disease: Dr. Thomas F. Leen, at the Carney Hospital, Sept. 16; Dr. Philip T. Buckley, South Boston; Dr. Omar P. Badger, at the City Hospital, Sept. 25; Dr. Louis Salvini, Massachusetts Homeopathic Hospital; Dr. Rae W. Whidden, at the Massachusetts General Hospital, Sept. 25, 1918; and Dr. Cohen at the Boston City Hospital.

The Attleboro Hospital is reported filled. Four deaths and 45 new cases of influenza were reported recently. The Attleboro Sanitarium will be opened for cases. Volunteer nurses are aiding the physicians. The total number of cases remains at 1000.

Leominster reported 46 new cases of influenza and one death.

Greenfield has had seven deaths due to influenza.

Gardner reported four deaths from pneumonia, bringing the total number up to 20. Among those ill are four of the nurses.

The latest developments in the influenza situation have caused the Boston authorities to believe that the crest of the epidemic has been passed. Calls for physicians have decreased.

The Province of Ontario has succumbed to the attacks of the influenza. It has also spread over parts of Quebec, Niagara-on-the-Lake, Ont., Kitchener, Ont., and London, Ont. In Quebec it is confined largely to the military population, with 45 new cases reported at Montreal. The total number at Montreal among the military forces is 189. There were 14 new cases and four deaths in the military camp at St. John's, Ont.

Reports from various parts of the country and the world in general show a general increase in the cases, and a spreading of the disease, while local conditions seem to be on the whole improving.

Salem reports 55 new cases and that 721 persons who were ill with the influenza have recovered sufficiently during the past week so as not to need further medical attention. At the Loring Villa Emergency Hospital, Dr. E. Campbell Douglass is in charge, and Miss M. Pauline Smith, Superintendent of the Woman's Friend Society, is in charge of the diet of the entire institution. The Sisters of Ste. Chretienne and the Sisters of Charity of the Immaculate Conception Church are doing fine work as nurses. District nurses are also doing splendid work.

Lowell shows a marked abatement in the epidemic, which has caused 199 deaths from 5033 cases in this city in the past month. There were 179 new cases and eight deaths on Oct. 12, as compared with 332 new cases and 14 deaths the previous day.

Revere had a total of 51 deaths up to Oct. 8.

In Somerville the epidemic is abating. There were 58 new cases on Oct. 9th, as compared with 70 the previous day. One church remained open and continued services, the Emmanuel Episcopal, and the Catholic Churches

were open but had no services. All other churches were closed.

An ordinance compelling the wearing of gauze masks by every person in San Francisco as a means of preventing the spread of the epidemic was passed Oct. 24 by the board of supervisors, at the request of the Board of Health.

The fact that nearly 2,600 deaths from the epidemic have occurred in Boston since the second week in September, despite the best medical effort to prevent them, shows that the reports have not been exaggerated, and impresses the seriousness of this disease to the health of the community. General conditions throughout the state are improving. The District Nursing Association makes plea for nurses' aids. Hyde Park has planned an intensified campaign against contagion. There was only one death in the First Naval District last week.

Maj. General Crozier recommended the transfer of no New England troops during the epidemic. Henry B. Endicott appealed for tents to help the State Guard establish open-air hospitals, the State's supply being exhausted.

The Cambridge Public Safety Committee reports that there were more calls lately for aid than any time during the past few weeks, but with a large number of workers all cases were taken care of. Twelve deaths were reported on Oct. 7th, as against 21 on the 5th. The capacity of the Temporary Hospital at the Merrill School has been increased to 105 beds and there are 85 patients there already. Five convalescent patients were taken to the Holy Ghost Hospital and more will be sent to St. John's Seminary, Brighton. The Columbus Day Nursery has offered its services on Green St. to the Public Safety Committee and children of patients will be taken care of. The Riverside Boat Club has offered its boathouse for hospital purposes. The soup kitchen at the Peabody School was opened under the direction of Mrs. Reed of the School Committee and hot soup delivered to the homes of the sick.

Mayor Morse, after a conference with the Board of Health, requested Adjutant-General Jesse Stevens to establish a military base hospital at Haverhill for the treatment of influenza patients. As tents were unavailable, portable wooden structures were used. A hospital unit

with a 100 bed capacity was established within a short time. There were five deaths at Haverhill from influenza and pneumonia on Oct. 6th, making a total of 26 in the previous week. It is estimated by health officers that there were in all about 1,000 cases, 100 having been reported each day for some time. The Keniza Trotting Park was selected as the site of the new military base hospital by Col. Wm. A. Brooks and Maj. Emory of the State Guard.

The progress of the influenza has taken a westward course in severity, and leaving the eastern sections of New England in a much more favorable situation since the beginning of the epidemic.

Brookton raised the closing ban on October 21 on account of the good reports issued by the Board of Health. There were only eight deaths in a recent 24 hours and only 27 calls for doctors. At the Field Hospital there are still 135 patients. The four physicians who came from Ohio have left to assist in other cities.

Concord, N. H., announced a total of 55 deaths in October from Spanish influenza and pneumonia.

Nashua, N. H., had fewer cases up to October 14. Eight influenza deaths were reported in 24 hours. The post office force is especially hard hit. Soup kitchens are feeding 500. Inoculations have passed the 3,000 mark.

In Manchester, N. H., the epidemic is believed to be under control. The closing ban has been lifted.

Portland, Me., reports that the conditions in several surrounding communities are very serious.

Lewiston, Me., reports 75 new cases of influenza, making a total of 600. The disease has appeared at Bates College. It is understood that the Board of Health is taking steps to enforce closing orders in this city.

In the State Prison at Charlestown, 11 inmates died of influenza. There were 350 patients, but now there has been a decrease to only 25.

Brookton's total death rate on October 16 was eight, the lowest since September 28, and there were only 30 new cases. Vaccine was received at the City Hall and administered. Capt. J. J. McNamara and Capt. J. F. Callahan will

be in charge. A canvass showed that only 900 employees are out of the local factories.

Quincy removed ban on gatherings on the 19th of October. The epidemic is diminishing. There are only 17 patients at the various emergency hospitals. At the Fore River Emergency Hospital there are 36 patients.

In Lawrence there are 124 new cases but of a mild nature. There were 11 admissions to the base hospital during one day, and 12 were discharged as cured.

At Mansfield there were only four new cases. There is also a case of diphtheria here, which was sent to the Boston City Hospital. Since the epidemic started here, 115 cases have been treated at the hospital, but there are now only 29 patients. Mansfield has had 838 cases and 36 deaths.

In Springfield there was a total of 428 influenza cases and 18 deaths in the last few days, making about 2,000 deaths since the epidemic started. The report is 70 cases less than for a similar three-day period last week.

Pittsfield has had 1,500 influenza cases since the outbreak of the epidemic. Health authorities declare that there is a wane in the epidemic at the present time. An appeal was made to the women of Pittsfield to relieve the nurses, who were much overworked.

Four Westfield soldiers died in Southern camps on October 14: Private James B. Hendrix, Private David A. Hendrix, Private Warren Lee and Private Oldrich Schindler.

Portsmouth, N. H., has continued the ban on all public places in spite of the decrease in the number of influenza cases.

Washington is mobilizing all its powers for a national campaign against the epidemic. The number of army cases is considerably decreased. Since the beginning of the epidemic in army camps, the total of cases reported is 250,000; pneumonia, 35,465; and deaths, 10,741.

It is estimated that there are now at least 200,000 cases of the disease in Virginia, while the estimate for Connecticut was placed at 110,000 up to October 16. Epidemics continue to be reported from various parts of Arkansas, Maryland, Louisiana, Oklahoma and other states.

New York City has a total estimate of about

110,000 cases, according to Commissioner Cope-land.

In Boston there is such a considerable decline in deaths that all bans on public places were lifted on the 19th. The deaths from grippa dropped to 71, the lowest figure since September 22. One of the fruits of the epidemic will be a campaign for improved sanitary conditions in the Boston Elevated system, and in the subways. There is still danger in other parts of the State. The latest State report follows: Fall River, 688 cases; Worcester, 445 cases; Lowell, 332 cases, 14 deaths; Taunton, 187 cases, 5 deaths; Somerset, 167 cases; Lawrence, 171 cases; Somerville, 118 cases; Lynn, 111 cases, 18 deaths; Waltham, 109 cases. Walpole has had a total of 246 cases during the epidemic.

Surgeon-General Brooks has accomplished wonderful results from his open-air hospital. The tent-hospitals consist of cubicles to house two patients each; then follows nine feet of space; then another cubicle, and so on. The three sides are let down by day and put up by night.

Nine of the 13 schools and stations in the 1st Naval District reported no new cases. Six of the ten patients in that district are students at the Radio School in Cambridge. There were two at the Aviation School and one each in Boston section base and at headquarters in the Little Building. Enough vaccine has been turned out at the State Laboratory at Forest Hills and at Tufts Medical School for 30,000 applications daily.

The Ayer Board of Health lifted the quarantine against Camp Devens, but the camp order is still in effect.

From 121 cities and towns outside of Boston 5,765 new cases were reported. There have been 3,633 deaths in Boston from influenza and pneumonia since the epidemic started, and more than 200,000 persons have been stricken.

It is estimated that 100,000 men in the Navy have been ill with the influenza, and the death list has been remarkably low.

Fall River leads the State in the number of cases, having 887 in one day. Springfield had 406 new cases and 18 deaths; New Bedford, 318 and 47 deaths; Lynn, 258 and 34 deaths; Worcester, 276; Lowell, 236 and 14 deaths; Adams, 238 and 9 deaths; Pittsfield, 208; Attleboro, 195; Plymouth, 150; Danvers, 101;

Framingham, 103; Lawrence, 76 and 5 deaths; Taunton, 80 and 4 deaths; Brookline, 8; Cambridge, 49 and 15 deaths; Salem, 73; Medford, 31; Somerville, 94; Waltham, 50. Many of the outside nurses have been recalled to their own communities to help fight epidemics in their own towns.

Boston's death rate shows a high mortality as compared with the figures corresponding to the same period of time last year. The following is the list:

	WEEK ENDING 1918		WEEK ENDING 1917	
	Oct. 12	Oct. 5	Oct. 13	Oct. 6
Total Deaths (all causes)	1285	1476	231	185
Native born	763	868	136	106
Foreign born	511	594	92	75
Children under 1 year	101	92	26	27
Children under 5 years	483	435	113	82
Total deaths, influenza and pneumonia	1027	1216	28	12
Influenza	850	991	0	0
Lobar pneumonia	107	142	13	9
Broncho pneumonia	70	82	10	3
All causes except Influenza and pneumonia	258	200	208	173
Tuberculosis	25	33	20	20
Heart Disease	37	34	37	32
Whooping cough	10	15	0	37

Boston had recovered sufficiently from the epidemic to allow the opening of all public places on October 19 at midnight. The ban has existed since September 27.

At Malden only two deaths were reported on October 15, and hospitals are discharging patients.

The State Department of Health gives the following list of cases on October 15:

Ware, 570 cases; Boston, 387 cases, 94 deaths; Fall River, 345 cases, 50 deaths; Taunton, 326 cases, 8 deaths; Lowell, 321 cases, 23 deaths; New Bedford, 307 cases, 22 deaths; Cambridge, 289 cases, 24 deaths; Haverhill, 261 cases; Lawrence, 238 cases, 13 deaths; Fitchburg, 198 cases, 32 deaths; Worcester, 184 cases; Hudson, 147 cases; Lynn, 146 cases; Springfield, 161 cases, 10 deaths; Andover, 124 cases; Holyoke, 116 cases; Webster, 100 cases; Waltham, 132 cases; Westfield, 112 cases.

There is a slight increase among the sailors. Six cases at the Aviator Detachment swell the number to fourteen. At Chelsea the total number of cases in the district is 3,818.

Medford has a marked improvement in the condition of the epidemic of that locality.

New York is taking drastic measures to pre-

vent the spread of the epidemic. Deaths from influenza reported on October 15 totalled 322, and pneumonia fatalities were 366, as against 222 and 236 of the day before. New cases of influenza were 4,925.

There has been high praise for the military camps. Conditions at the camps which have base hospitals show that they are in an excellent state, and that they have already started to prepare for the winter.

Dr. Hammond Bunderson has arrived in Boston from the Chicago City Department of Health to make a study of the methods used here in combating the epidemic. Miss Edith Burleigh, superintendent of the parole department of the Massachusetts State Industrial School for Girls, has been appointed State Supervisor of Medical Social Service.

At Manchester, N. H., influenza cases under treatment have decreased 200 since Oct. 19, and now number 673, with 75 new cases for Oct. 20. Emergency service of all kinds was discontinued Oct. 21, and volunteer assistants to the Board of Health were released. The Board issued an order allowing schools, theatres and picture houses to reopen Oct. 28, and social functions were resumed at the same time. Churches reopened Oct. 20.

Boston is undertaking a second campaign against the epidemic in the way of education, relief work for the benefit of those who are recovering, and home service.

In Chicago the epidemic will be fought with the aid of vaccine originated by Edward C. Rosenow, chief bacteriologist of the Mayo Brothers' Foundation. One million doses will be in the hands of Chicago physicians in a few days. It was tried in Rochester, when 20,000 were inoculated and not one death followed the inoculations, it is reported.

Reports from 33 states showed the spread of the epidemic. Conditions were described as satisfactory in Oregon, Minnesota, West Virginia and Tennessee.

#### WAR NOTES.

U. S. RED CROSS IN ITALY.—The U. S. Red Cross Unit has established hospitals in Italy at Milan, Rome, Genoa and Florence. They are at the service of any Americans engaged in war service. The United States Red Cross Tuber-

culosis Unit arrived in Rome on October 11, 1918. It is in charge of Dr. W. C. White of Pittsburgh and Dr. Bishop of Cleveland. There are representatives in the unit from Boston.

**OFFICERS KILLED IN FIRE.**—Two officers were reported killed and several others injured in a fire which destroyed the officers' headquarters at base hospital No. 3, at Rahway, N. J., on October 10. The fire was confined to the officers' quarters and did not spread to the main hospital building.

**GENERAL GORGAS RECALLED TO THE ACTIVE LIST OF THE ARMY.**—Recall to the active list of Major-General William C. Gorgas, ex-Surgeon-General of the Army, who recently was retired for age, and his assignment to active duty in the same rank of the Medical Corps, was announced by Secretary Baker. General Gorgas will complete the inspection of medical facilities in France and England, upon which he now is engaged, and then will return to the United States to submit a report. It is possible that his next assignment will take him to Italy.

**INFANT MORTALITY HIGH IN PETROGRAD.**—Infant mortality in Petrograd has increased 50 per cent., and the juvenile population of the city will practically be wiped out this winter unless food is provided from foreign countries. According to Capt. William B. Webster of the American Red Cross, who has just arrived from Petrograd, starvation is claiming thousands of adults. There are 75,000 homeless children. Captain Webster is trying to coöperate with the Danish Minister in order to feed the children next winter. It is estimated that the number of children who will be public charges before the end of the winter will be 140,000. The cholera epidemic is under control.

**AMERICAN HOSPITALS IN THE RIVIERA.**—Thirty thousand beds for American convalescent soldiers are being prepared in some of the large hotels at Nice and other points along the Riviera. The medical staff will be all Americans, and most of the nurses will belong to the American Red Cross. The whole chain of hospitals will be under the command of Major W. H. Browne of Detroit. The leases under which the hotels are being taken are made out

for a period extending to one year after the conclusion of the war.

**CONDITION OF THE ARMY ABROAD.**—Secretary of War Baker is greatly pleased with the progress which the Army has made in France. The supply service is equal to the demands which will be made. No serious outbreak of influenza has occurred among the troops in France. Hospitals of 5,000 to 10,000 beds each and special hospitals for certain forms of relief have been instituted with amazing results. The general condition of the health of the Army is excellent.

**APPROPRIATION FOR ARMENIAN RELIEF.**—An appropriation of \$9,000,000 as an additional contribution to the American committee for Armenian and Syrian relief was announced by the American Red Cross War Council. People were reported dying in the streets from starvation and from such diseases as typhus and cholera. During the past year the American Red Cross has contributed about \$3,000,000 to the Armenian Committee for relief in the Northeastern countries which had been under Turkish domination.

**CONFIRMATION OF GENERAL IRELAND AS SURGEON GENERAL.**—The nomination of Major General Ireland as Surgeon General of the Army was approved by the Senate.

**PARKER HILL HOSPITAL TAKEN BY GOVERNMENT.**—The Parker Hill Hospital property, controlled by the Woman's Charity Club and the Massachusetts Women's Hospital Corporation, will be transferred to the Government. It contains 75 beds and will be made the headquarters for nurses who work in the Robert B. Brigham and the Elks' Hospitals.

**NEW ENGLAND WOUNDED IN BOSTON.**—Mayor Peters of Boston urges that the New England wounded be brought to Boston instead of to Plattsburg as has been the custom. The west department of the City Hospital has been offered to the service. The property embraces 30 acres of land and is of sufficient area to allow the erection of a large temporary hospital. The Government has been asked especially to grant this request as the weather conditions are so unfavorable for friends and relatives to visit their wounded.

**DISCONTINUANCE OF DENTAL LECTURES.**—The public Sunday afternoon lecture course held each year at the Forsyth Dental Infirmary for Children will be discontinued during the coming year, owing to the fact that the chief of the lecture department, Dr. Charles W. Rodgers, has received an assignment to establish a dental school for the Navy. Dr. Rodgers expects to be assigned to the Great Lakes Naval Training School, where, with Dr. Clarence J. Grieves, he will do pioneer work of establishing the naval dental school.

**APPOINTMENTS TO MEDICAL RESERVE CORPS.**—The following appointments in the Medical Reserve Corps have been announced by the War Department:

**Captains:** Dr. Robert Cornelius Robinson, Providence; Dr. Robert L. Guiler, Boston; Dr. Millard C. Webber, Portland, Me.

**First Lieutenants:** Dr. Emile D. Miville, Manchester, N. H.; Dr. Richard W. Sheehy, Winchester, Mass.; Dr. Dennis James Carroll, Vergennes, Vt.; Dr. Everett Leon Chapman, Dover, N. H.; Dr. Chester McLoon Wiggin, Conway, N. H.

#### BOSTON AND MASSACHUSETTS.

**TYPHOID FEVER IN BEVERLY.**—Three new cases of typhoid fever were reported to the Board of Health at Beverly. More than half of the former victims took milk from one Beverly milkman, and the suspected source of supply at Ipswich was cut off. There are also several patients suffering from typhoid and influenza at the same time.

**HOSPITAL BÉQUESTS.**—The late James J. Corbett of Boston has left bequests of \$5,000 to the Carney Hospital and \$2,000 to the Little Sisters of the Poor. Upon the death of the beneficiaries the trustee is directed to distribute the principal sum equally between the Carney Hospital, the Little Sisters of the Poor and the New England Home for Little Wanderers.



#### Miscellany.

#### BULLETIN ON SPANISH INFLUENZA.

The Surgeon General of the United States Public Health Service has just issued the following publication\* dealing with Spanish influenza,

which contains all known available information regarding this disease. Simple methods relative to its prevention, manner of spread, and care of patients, are also given. Readers may obtain copies of this pamphlet free of charge by writing to the "Surgeon General, U. S. Public Health Service, Washington, D. C."

#### "SPANISH INFLUENZA"—"THREE-DAY FEVER" "THE FLU."

*What is Spanish Influenza? Is it something new? Does it come from Spain?*

The disease now occurring in this country and called "Spanish Influenza" resembles a very contagious kind of "cold" accompanied by fever, pains in the head, eyes, ears, back or other parts of the body, and a feeling of severe sickness. In most of the cases the symptoms disappear after three or four days, the patient then rapidly recovering; some of the patients, however, develop pneumonia, or inflammation of the ear, or meningitis, and many of these complicated cases die. Whether this so-called "Spanish" influenza is identical with the epidemics of influenza of earlier years is not yet known.

Epidemics of influenza have visited this country since 1647. It is interesting to know that this first epidemic was brought here from Valencia, Spain. Since that time there have been numerous epidemics of the disease. In 1889 and 1890 an epidemic of influenza, starting somewhere in the Orient, spread first to Russia, and thence over practically the entire civilized world. Three years later there was another flare-up of the disease. Both times the epidemic spread widely over the United States.

Although the present epidemic is called "Spanish Influenza," there is no reason to believe that it originated in Spain. Some writers who have studied the question believe that the epidemic came from the Orient and they call attention to the fact that the Germans mention the disease as occurring along the eastern front in the summer and fall of 1917.

#### How can "Spanish Influenza" be recognized?

There is yet no certain way in which a single case of "Spanish Influenza" can be recognized; on the other hand, recognition is easy where there is a group of cases. In contrast to the outbreaks of ordinary coughs and colds, which usually occur in the cold months, epidemics of influenza may occur at any season of the year, thus the present epidemic raged most intensely in Europe in May, June, and July. Moreover, in the case of ordinary colds, the general symptoms (fever, pain, depression) are by no means as severe or as sudden in their onset as they are in influenza. Finally, ordinary colds do not spread through the community so rapidly or so extensively as does influenza.

\* Public Health Supplement No. 34, September 28, 1918.

In most cases a person taken sick with influenza feels sick rather suddenly. He feels weak, has pains in the eyes, ears, head or back, and may be sore all over. Many patients feel dizzy, some vomit. Most of the patients complain of feeling chilly, and with this comes a fever in which the temperature rises to 100 to 104. In most cases the pulse remains relatively slow.

In appearance one is struck by the fact that the patient looks sick. His eyes and the inner side of his eyelids may be slightly "blood-shot," or "congested," as the doctors say. There may be running from the nose, or there may be some cough. These signs of a cold may not be marked; nevertheless the patient looks and feels very sick.

In addition to the appearance and the symptoms as already described, examination of the patient's blood may aid the physician in recognizing "Spanish influenza," for it has been found that in this disease the number of white corpuscles shows little or no increase above the normal. It is possible that the laboratory investigations now being made through the National Research Council and the United States Hygiene Laboratory will furnish a more certain way in which individual cases of this disease can be recognized.

*What is the course of the disease? Do people die of it?*

Ordinarily, the fever lasts from three to four days and the patient recovers. But while the proportion of deaths in the present epidemic has generally been low, in some places the outbreak has been severe and deaths have been numerous. When death occurs it is usually the result of a complication.

*What causes the disease and how is it spread?*

Bacteriologists who have studied influenza epidemics in the past have found in many of the cases a very small rod-shaped germ called, after its discoverer, Pfeiffer's bacillus. In other cases of apparently the same kind of disease there were found pneumococci, the germs of lobar pneumonia. Still others have been caused by streptococci, and by other germs with long names.

No matter what particular kind of germ causes the epidemic, it is now believed that influenza is always spread from person to person, the germs being carried with the air along with the very small droplets of mucus, expelled by coughing or sneezing, forceful talking, and the like by one who already has the germs of the disease. They may also be carried about in the air in the form of dust coming from dried mucus, from coughing and sneezing, or from careless people who spit on the floor and on the sidewalk. As in most other catching diseases, a person who has only a mild attack of the disease himself may give a very severe attack to others.

*What should be done by those who catch the disease?*

It is very important that every person who becomes sick with influenza should go home at once and go to bed. This will help keep away dangerous complications and will, at the same time, keep the patient from scattering the disease far and wide. It is highly desirable that no one be allowed to sleep in the same room with the patient. In fact, no one but the nurse should be allowed in the room.

If these are cough and sputum or running of the eyes and nose, care should be taken that all such discharges are collected on bits of gauze or rag or paper napkins and burned. If the patient complains of fever and headache, he should be given water to drink, a cold compress to the forehead, and a light sponge. Only such medicine should be given as is prescribed by the doctor. It is foolish to ask the druggist to prescribe and may be dangerous to take the so-called "safe, sure, and harmless" remedies advertised by patent-medicine manufacturers.

If the patient is so situated that he can be attended only by some one who must also look after others in the family, it is advisable that such attendant wear a wrapper, apron, or gown over the ordinary house clothes while in the sick room, and slip this off when leaving to look after the others.

Nurses and attendants will do well to guard against breathing in dangerous disease germs by wearing a simple fold of gauze or mask while near the patient.

*Will a person who has had influenza before catch the disease again?*

It is well known that an attack of measles or scarlet fever or smallpox usually protects a person against another attack of the same disease. This appears not to be true of "Spanish influenza." According to newspaper reports the King of Spain suffered an attack of influenza during the epidemic thirty years ago, and was again stricken during the recent outbreak in Spain.

*How can one guard against influenza?*

In guarding against disease of all kinds, it is important that the body be kept strong and able to fight off disease germs. This can be done by having a proper proportion of work, play, and rest, by keeping the body well clothed, and by eating sufficient, wholesome, and properly selected food. In connection with diet, it is well to remember that milk is one of the best all-round foods obtainable for adults as well as children. So far as a disease like influenza is concerned health authorities everywhere recognize the very close relation between its spread and overcrowded homes. While it is not always possible, especially in times like the present, to avoid such overcrowding, people should consider the health danger and make every effort to reduce the home overcrowding to a minimum. The value of fresh air through open windows can not be over emphasized.

Where crowding is unavoidable, as in street cars, care should be taken to keep the face so turned as not to inhale directly the air breathed out by another person.

It is especially important to beware of the person who coughs or sneezes without covering his mouth and nose. It also follows that one should keep out of crowds and stuffy places as much as possible, keep homes, offices, and workshops well aired, spend some time out of doors each day, walk to work if at all practicable—in short make every possible effort to breathe as much pure air as possible.

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### EPIDEMIC INFLUENZA.\*

(SPANISH INFLUENZA.)

AN acute infectious disease (epidemic influenza) has prevailed in Europe this year similar in many respects to the disease which prevailed in pandemic form in the winter of 1889-90. It seems probable that in 1918, as in 1889-90, the earliest appearance was in eastern Europe. By April cases were occurring on the western front. In Spain, according to reports, 30 per cent. of the population were attacked in May. The 1889 epidemic, starting in northern Europe, also fell heavily on Spain; the present ruler, then 3 years old, being one of the first attacked in Madrid. The King of Spain is said also to have been attacked in the present epidemic. The epidemic of 1918 was at its height in Germany in June and July. It has appeared in practically every section of Europe. In England the epidemic prevailed in May, June, and July.

Outbreaks have been reported from various sections of the United States, but the spread has been by no means so rapid as in 1889, when the disease occurred in America almost simultaneously with its appearance in western Europe.

In the absence of a clean-cut symptomatology, distinct from that of other diseases, and of any criterion, such as a proved causative organism, demonstrable in the tissues of the patient or his discharges, it is difficult to make diagnosis in individual cases apart from an intense prevalence of the disease. It is likewise impossible for us to assert or deny the unity of this epidemic with that of 1889-90. The marked difference in season is notable. In 1889 the first outbreak occurred in St. Petersburg during October; in Berlin and Paris, during November; in Brussels, Copenhagen, London, Vienna, Rome, Madrid, Boston, New York, and Philadelphia, during December, persisting in each place for one or two months. In 1918 the heavy incidence has been in summer, but the duration in any one focus, the general character of the disease, its tendency to spread

along routes of travel, and the enormously high case incidence have been similar in the two pandemics.

The identity of the present outbreak with outbreaks in other years is even more uncertain.

Hippocrates and Livius refer to an epidemic in 412 B. C., which is regarded by many to have been influenza. Since ancient times, epidemics somewhat similar to the present outbreak have been recorded in the twelfth and thirteen centuries, 4 in the fourteenth, 5 in the fifteenth, 8 in the sixteenth, including the pandemics of 1510 and 1580, 8 in the seventeenth, 20 in the eighteenth, and 14 in the nineteenth century, including the pandemics of 1831, 1833, 1837, 1847-48, and 1889-90. After the pandemic of 1847-48, there appears to have been a considerable pause before the pandemic of 1889-90 appeared "like a thunder cloud from the east," as Beck puts it. Following this pandemic, high incidence of epidemic influenza was reported during the winters of 1891 to 1894, 1907-8, and 1915-16.

The symptoms in the present pandemic have been an acute onset, often very sudden, with bodily weakness and pains in the head, eyes, back, and elsewhere, in the body. Vomiting may be a symptom of onset and dizziness is frequent. Chilly sensations are usual, and the temperature is from  $100^{\circ}$  to  $104^{\circ}$ , the pulse remaining comparatively low. Sweating is not infrequent. The appetite is lost, and prostration is marked. Constipation is the rule. Drowsiness and photophobia are common. The conjunctivae are reddened, and the mucous membranes of the nose, throat, and bronchi often give evidence of inflammation. The general symptoms, however, predominate over the local. Cervical and general lymphadenitis and nystagmus have been reported to be very frequent by certain observers. Characteristically, there is no leucocytosis during the height of the fever, so that a high white count during the first 60 hours is indicative of another disease or of complication. The fever usually lasts from three to five days; but relapses are not uncommon, and complications, particularly pulmonary, are to be feared. The death rate is usually given as extremely low; but in the latter periods of an outbreak an increased number of deaths, presumably due to complications, has been reported in Spain and in the United States. Besides bronchitis and pneumonia, inflammation of the middle ear and cardiac weakness may follow the disease.

Epidemic influenza may vary in type in different places; thus diarrhea was said to be frequent in Spain. It is to be supposed that in some places aberrant types may be found, but, in the absence of a definite criterion for diagnosis, it is impossible to affirm this with certainty.

In its onset, epidemic influenza may stimulate almost any of the acute infectious diseases,

but in the civil population it must be differentiated chiefly from an ordinary coryza or bronchitis, from cerebrospinal fever, and from such conditions as the glandular fever of children. In the usual coryza or bronchitis the general symptoms are by no means so severe or so sudden in appearance as in epidemic influenza, and the spread of these infections through a community is not so complete. Even in the absence of an outbreak of epidemic meningitis, the symptoms mentioned as typical of influenza, if combined with a stiff neck or Kernig's sign, would justify a lumbar puncture. A negative result with the lumbar puncture or the absence of a leucocytosis would indicate that meningitis was not present. Glandular fever is limited to children; other ephemeral fevers have not occurred in widespread fashion. The short course of the fever (always less than seven days) in uncomplicated influenza is thus an aid in diagnosis.

The incubation period is probably as a rule very short, though with such universal prevalence this is hard to verify. All ages are attacked, young active adults being especially susceptible. In Germany there has been such a preponderance of cases among the young that it is supposed that the 1889 epidemic conferred an immunity on most of those at present over 30 years of age. This has not been observed elsewhere.

All evidence points to human contact as being the means of spread, and from the local symptoms it has been assumed that the nose and throat have been the points of egress of the virus and the points of inoculation. There is nothing to show that other animals have any part in carrying the disease.

Discussion as to the etiology of the disease has been chiefly concerned with the question whether the influenza bacillus of Pfeiffer (1892) is the specific causative factor. This organism offers difficulties in recognition, cultivation, and identification, and it may be that the failure to find it in the last pandemic and the failure of many bacteriologists of standing to demonstrate it in present pandemic are due to these difficulties. It is certainly found outside of epidemics, that we can not regard its absence at present as indicating that the disease is not epidemic influenza. For the present the diagnosis must be clinical rather than bacteriological. Streptococci and other diplococci, some similar to or identical with the micrococcus catarrhalis, have been reported as very frequent in the nose and throat of patients. Pneumococci and bacilli of the Friedlaender group have been found in complicated cases. The mere predominance of a certain organism in the respiratory tract can not be accepted as proof that it causes the disease. It may be that the actual causative factor is a filterable virus.

The treatment is symptomatic. On account

of cardiac weakness, rest in bed should be prolonged after defervescence in proportion to the severity of the case. Attention to cleanliness of the mouth, adequate ventilation, avoidance of exposure to cold, and isolation from those who may be carriers of virulent pneumococci and streptococci are measures advisable to prevent complications. Aspirin or similar remedies may be used to relieve headache and general pains. Watch should be kept for complications, and cases should not be discharged too early.

Crowded offices, and particularly street cars, are potent factors in the spread of the disease. In Berlin the street car conductors showed an exceptionally high incidence. The avoidance of street cars and of crowds, where possible, is therefore to be urged during an epidemic, although the disease is too mild to make it advisable to stop all the activities of a city. To prevent the transportation of the influenzal virus to the well and possible causes of complications to the sick, masks for sick-room attendants are advisable. The organism is probably short lived outside the body, and attention should be directed toward keeping people apart rather than toward the disinfection of things, aside from the precautions of general cleanliness. The spread of streptococcus pneumonia in military camps, and the fear that with the advent of cool weather severe pulmonary complications will follow influenzal attacks more frequently than during the past summer, indicate the urgent need for the adoption of more stringent precautions to prevent such complications than have been customarily taken hitherto.

The most dangerous form of human contact in the presence of epidemic influenza is, in all probability, that with coughers and sneezers. Coughing and sneezing, except behind a handkerchief, is as great a sanitary offense as promiscuous spitting, and should be equally condemned.

### Correspondence.

#### DEATH OF MISS COLBY.

Boston, 17 October, 1918.

Mr. Editor:—

It is eminently fitting that the physicians of Boston should take some notice of the death of that quite remarkable person, Miss Jennie M. Colby, who so long and so devotedly served the interests of the sick, as masseuse, and who was always so loyal an advocate of the principle that all therapeutic measures, although applied by another person—no matter how skilful—should be under the constant supervision of the doctor in charge.

Miss Colby was born in Saybrook, Conn., in, or about, the year 1859. She numbered among her ancestors five great-uncles prominent in the educational world, two of them being presidents of colleges. Her education was received partly in Saybrook, but chiefly in the Perkins Institution for the Blind, from which she was graduated in 1883, for she suffered from a heavy handicap in the form of a serious impairment

of vision which, in the case of many a person of less strong character, would have been prohibitive of labors and enterprises such as she undertook and successfully carried through. She worked up to the very last day of her life, dying suddenly and alone, presumably from apoplexy, on September 16, 1918.

She studied her massage and gymnastics mainly under Dr. Douglas Graham and the late Baron Posse, for both of whom she had a high respect. In 1883 she set up for herself, and from then on she practised her art with a single-minded devotion to the interests of her patients, the wishes of the physician and the advancement of her chosen and important work. It was my good fortune to make her acquaintance early in her career, and to have her cooperation in a great many cases, and I aver with pleasure that over and above the benefits which she brought to my patients by her skill, her faithfulness and her personality, she also inspired in me, whether I would or no, something of her own sense of obligation. Indeed, a person of finer character I have rarely seen. She was always studious, intelligent and discriminative, of a happy and contented disposition, and blessed with a number of good friends.

It is worth recording, also, that Miss Colby was, to a great extent, the parent of hydrotherapeutics in this city, although in this respect our efforts went hand in hand. Our first essays in this direction were made, if I remember rightly, not long after the publication by Dr. Mary Putnam Jacoby of New York of an interesting paper in which she warmly advocated the use of wet packs, followed by massage, in the treatment of anemia. I suggested to Miss Colby to try these packs on behalf of a lady living in one of the hotels in Boston—so many years ago that I should hesitate to estimate the number. This first attempt proved eminently satisfactory, and, from then on, Miss Colby worked up the various water treatments—at first only in so far as this could be done simply in private houses, afterward in a miniature establishment which she organized in her own apartments on Newbury Street. Finally, she moved to a large gymnasium in the Farragut Building, a portion of which was fitted up with complete hydrotherapeutic apparatus, and this has remained, up to the present day, as the home of the well known "Medical Baths" which still fill a very useful place. It was evident from the first that this enterprise would not be a lucrative one, but to Miss Colby that was an entirely secondary consideration. She thought that the two modes of treatment, the physical and the hydrotherapeutic, ought to be combined, and she devoted herself whole-heartedly to combining them.

Her best professional skill was ardently devoted to the children in the Out-Patient Department of the Children's Hospital. To this work she gave her services—of course without payment—two afternoons a week for twenty-five years.

But it was not only as an actual practitioner in massage and exercises that Miss Colby won her reputation. For a number of years she carried on a gymnasium in which she had a number of pupils who have become well known to the profession ever since; and I believe that all of them have continued to hold the same opinion of her that I have held.

She was not by any means a purely passive person, but a determined advocate of what she thought was right and ready to oppose vigorously, if necessary, those whom she believed were on the wrong track. It was with no lax good nature but with the true missionary spirit that she would work sometimes, for some special patient, for months, day after day, with no expectation of payment, and she richly deserves to have it said of her, "Well done, good and faithful servant."

NOTE.—Miss Colby was the author, either alone or with others, of several valuable publications. The most important of these was "The Educational Gymnastic Play," written by Fannie L. Johnson and Jessie M. Colby, a book of practical directions, eighty pages in length, describing excellent exercises and games for children, in considerable detail.

JAMES J. PUTNAM, M.D.

#### FREE GOVERNMENT RADIO SCHOOL

Department of Commerce, Navigation Service,  
Office of Radio Inspector, Custom House, Boston.  
September 30, 1918.

Mr. Editor:—

This office is conducting a free government radio school in the Naval Militia Armory, Mechanics Building, 97 Huntington Avenue, Boston, on Monday, Wednesday and Friday evenings, 7 to 9 P.M.

An unlimited number of radio operators is required in special branches of both Military and Naval service, and all men subject to selective service law should avail themselves of this advance training, which will be of material assistance to them when called. Special preference of enrollment will be given to men of Class 1, Div. A, or those having necessary qualifications for enlistment in any branch of Army or Navy.

The instruction consists of two hours' practice in International Morse code. Facilities permit the instruction of 275 men, and registrants are received continually, upon approval of application and condition of regular attendance.

Enrollment must be made in person at the office of Radio Inspector, 7th floor, Custom House, Boston, and applicants must furnish proper evidence of registration, classification and birth. When duly qualified, students will receive certificates of proficiency authorized by the Government, and accepted by military and naval departments.

Respectfully,

ARTHUR BATCHELOR, Radio Inspector.

#### CORRECTIONS.

536 Commonwealth Ave., Boston.

Mr. Editor:—

In the JOURNAL of October 17, 1918, in the section of Correspondence, under the caption "Hearing Tests," in the sixth line of the second paragraph insert after the word "alike," "or well in one ear and fainter in the other at a given distance."

In the line before the last of the same paragraph, put "seventy-five cent." in quotations.

In the first line of the last paragraph, put the word "air" in place of the word "hearing."

Yours truly,

JOS. PRENN, M.D.

#### TIME-CROWDING AS A FACTOR IN INFLUENZA.

Portsmouth, N. H.  
October 17, 1918.

Mr. Editor:—

I read in the Boston papers the statement made by Dr. William A. Brooks about the influenza epidemic. If I understand Dr. Brooks aright, he seems to ascribe the epidemic to the crowded condition of ships,—vitiated air and lack of sunshine. Permit me to ask, through the columns of your JOURNAL, a few questions which may possibly prove of some practical interest:

Are we to regard the present epidemic as being mainly the result of crowded ships? Should lack of fresh air and absence of sunshine be alone considered as the principal factors of the influenza and pneumonia plague which ravages the country from shore to shore? Are not there other factors equally important? Is it not biologically true that where organisms are suddenly exposed to intense exertion, overstrain, exhaustion, fatigue, cold, etc., that they become reduced in vitality, that the general resistance to infection is lowered, and that they are apt to fall easy victims to invasions by pathogenic micro-organisms? May we not in our present plight take such

factors into consideration? May it not be quite possible that we have also to count with fundamentally predisposing conditions such as overstrain, exhaustion, fatigue, exposure to cold, etc., due to the sudden, quick hardening process of severe training and drilling of millions of young men unused to hardships and exposures, unable to react and be adapted suddenly to the conditions of intensive training fit for hardened constitutions of veterans who are sifted by the natural process of the survival of the fittest? Is it not quite probable that we may have to count here with the results of such a fundamental factor as the intensive process of raising armies of young adults in the briefest possible time, in a few months, in a few weeks? May we not expect that nature exacts its full reckoning for the feverish activity of obtaining quick results.

Have not Spencer, Clouston, James and others warned this nation against its "breathless hurry," "painful tension," convulsive eagerness, and, more especially against its intense "solicitude for quick results"? Have we ever paid heed to the warnings of those great men?

In this supreme moment of national life may it not be the sacred duty of the medical man to sound a warning note of danger against any intensive process of work and training, against sudden hardening and exposure of millions of our young generation? May it not be well and practical to take critical account of our methods of work, methods which may possibly defeat the ultimate purpose of a vigorous and healthy national life? May it not be quite probable that in the hurry of getting quick results, by intensive training and hardening, we really exhaust and waste the energies of our young people, drain the valuable sources of our national man-power, and expose the nation to serious dangers of wide-spread epidemics and virulent plagues?

If Dr. Brooks finds it necessary to point out the dangers of *crowding in space*, may not the medical profession find it requisite to warn the nation against the still greater dangers of *crowding in time*? Is it not probable that the medical profession may perform a great and lasting service to the country in this present hour of need, if, with the greatest thinker of all ages, Aristotle, special stress is laid on the principle of *moderation*?

Yours fraternally,  
BORIS SIDIS.

VOLUNTEER MEDICAL SERVICE CORPS,  
COUNCIL OF NATIONAL DEFENSE.

Washington, October 16, 1918.

From: Volunteer Medical Service Corps,  
Council of National Defense.  
To: Members of State Executive Committees and County Representatives, Volunteer Medical Service Corps.  
Subject: Influenza Epidemic.

1. In view of the present serious epidemic which is sweeping over the country, the Volunteer Medical

Service Corps earnestly invites your attention to the following important action:

Urge upon the members of the Volunteer Medical Service Corps that they instruct families under their care guard against the epidemic by:

Thorough cleanliness of houses, premises, clothing and utensils, and personal cleanliness.

Avoid stirring up dust.

Wash, scrub, flush, sprinkle and use soap and water thoroughly.

Gargle and spray the nose and throat with an alkaline antiseptic fluid frequently.

Cöperate at once to the fullest extent with the local, State and national boards of health. Urge and cöperate in preparing towns and cities for the epidemic by establishing emergency hospitals in suitable buildings, by districting communities, and apportioning or dividing medical forces comprising men and women physicians and nurses so that no portion of the community is without medical care.

Circulate as thoroughly as possible and explain to the public the warning and directions printed by the United States Public Health Service and by local health authorities.

Urge the importance of fresh air and the avoidance of chill and overheat.

In fighting the epidemic give no medicine and use no treatment which may depress the vital forces, especially the heart of the patient.

2. The Army and Navy are fighting and conquering Germans. We must fight and conquer germs without taking anything away from the Army and Navy. Don't ask the Army and Navy for medical and surgical supplies. Use simple utensils for sterilizing, the simplest kinds of beds and bedding, make your own masks and dressings, and fight for yourselves.

3. While the epidemic is on, do no surgical operations unless absolutely necessary to save life.

4. In every way in your power urge the members of the Volunteer Medical Service Corps to cöperate to the fullest extent with the United States Public Health Service and with State and local health authorities.

EDWARD P. DAVIS, *President,*  
Volunteer Medical Service Corps.

RECENT DEATH.

CHARLES S. CAVELLY, M.D., Professor of Hygiene in the University of Vermont College of Medicine, and President of the State Board of Health since 1891, died, on October 16, in Rutland, Vt. Dr. Cavelly was widely known as a specialist in infantile paralysis. He was born in Troy, N. Y., and was graduated from Dartmouth in 1878, and from the University of Vermont College of Medicine in 1881. He was director and attending physician of the Rutland Hospital and consulting physician of the Proctor Hospital. He had been a trustee of the Vermont Tuberculosis Sanatorium and became a member of the State Board of Health in Vermont in 1890, and its president a year later. He belonged to the American Medical Association, the Vermont State Medical Society and the American Public Health Association.